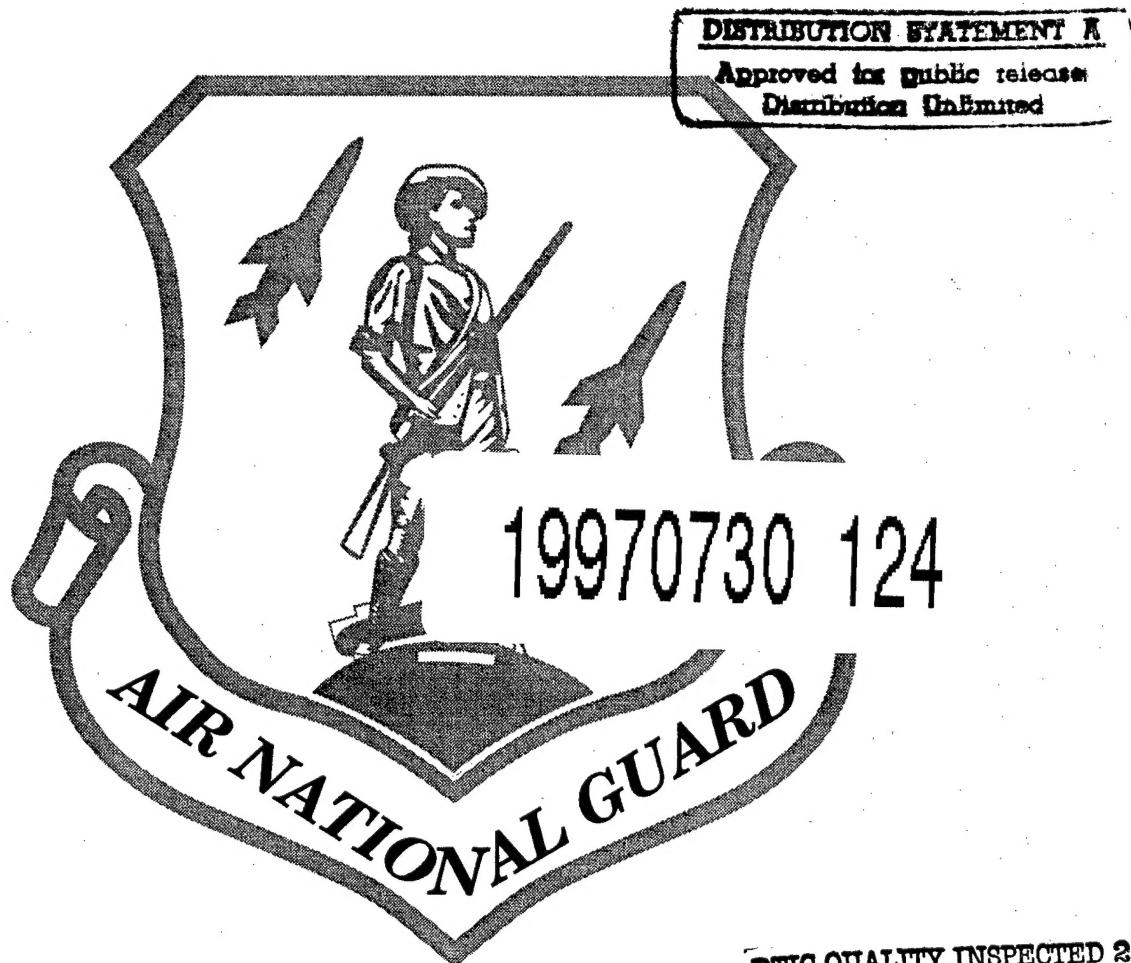


Installation Restoration Program
Final Semi-Annual Ground Water Monitoring Report
for the December 1996 Round

162nd Fighter Wing
Arizona Air National Guard
Tucson International Airport Area Superfund Site
Tucson, Arizona

June 1997



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Final Semi-Annual Ground Water Monitoring Report
for the December 1996 Round**

**162nd Fighter Wing
Arizona Air National Guard
Tucson International Airport Area Superfund Site
Tucson, Arizona**

June 1997

**Prepared For:
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LIST OF ACRONYMS

<u>Acronym</u>	<u>Definition</u>
AANG	Arizona Air National Guard
ERM	ERM-West, Inc.
TCE	trichloroethylene
PCE	tetrachloroethylene
VOC	volatile organic compound
µg/l	micrograms per liter

SECTION 1.0

INTRODUCTION

ERM-West, Inc., (ERM) conducted a ground water monitoring round during November/December 1996 as part of the semi-annual ground water monitoring program at the Arizona Air National Guard (AANG) Base in Tucson, Arizona. The work was performed under contract DAHA90-94-D-0014 between ERM and the National Guard Bureau, Departments of the Army and Air Force. The scope of the monitoring round and methods utilized are described in ERM's workplan entitled: *Final Workplan for Ground Water Monitoring 162nd Fighter Group, Arizona Air National Guard, Tucson International Airport, Tucson, Arizona* (August 1996).

Ground water samples and ground water level measurements were collected from 29 monitoring wells located within the AANG Base. Ground water samples were also collected from two off-site private wells and from two Tucson Water monitoring wells.

Previous ground water monitoring at the AANG Base was performed by ERM and by Oak Ridge National Laboratory/Environmental Technology Section. Previous data collected at the AANG Base are summarized in the following documents:

- ORNL/ETS's *Technical Memorandum, October 1994, Ground Water Sampling Results* (February 1995);
- ORNL/ETS's *Final Installation Remedial Investigation Report* (June 1995);
- ERM's *Final Semi-Annual Ground Water Monitoring Report* (September 1995);
- ERM's *Final Semi-Annual Ground Water Monitoring Report for the December 1995 Round* (May 1996); and
- ERM's *Final Semi-Annual Ground Water Monitoring Report for the June 1996 Round* (October 1996).

This report presents a summary of water level and water quality data collected by ERM during the November/December 1996 semi-annual ground water monitoring round. For the purpose of this report, the

FINAL

data presented will be referred to as collected during the "December 1996" sampling round.

SECTION 2.0***MONITORING ACTIVITIES***

This section provides a summary of ground water monitoring activities performed during the December 1996 semi-annual ground water monitoring round at the AANG Base. Figure 2-1 shows the locations of wells included in the ground water monitoring program.

2.1 December 1996 Monitoring Round

The December 1996 monitoring round was comprised of ground water level measurements and ground water sample collection and analysis.

2.2 Ground Water Level Measurements

Static ground water levels were measured and recorded by field personnel using an electric static water level indicator capable of producing measurements accurate to within ± 0.01 foot. Measurements were made from established reference points marked on top of each well casing by previous contractors at the Base. Static ground water levels were measured at on-Base monitoring wells from November 21 through December 3, 1996.

2.3 Ground Water Sample Collection

ERM collected ground water quality samples from 28 on-Base monitoring wells and from the two private wells (Kestler 1 and Kestler 2) during two time periods: November 20 through November 22, 1996, and December 2 through December 3, 1996. Sampling activities were temporarily halted on November 22, 1996, due to malfunctioning submersible pumps. Upon discovery of the malfunctioning pumps, ERM procured new pumping equipment and remobilized to complete the sampling round on December 2 and 3, 1996. Ground water samples were collected from monitoring wells WR-055B and WR-072S by Tucson Water personnel on November 25, 1996.

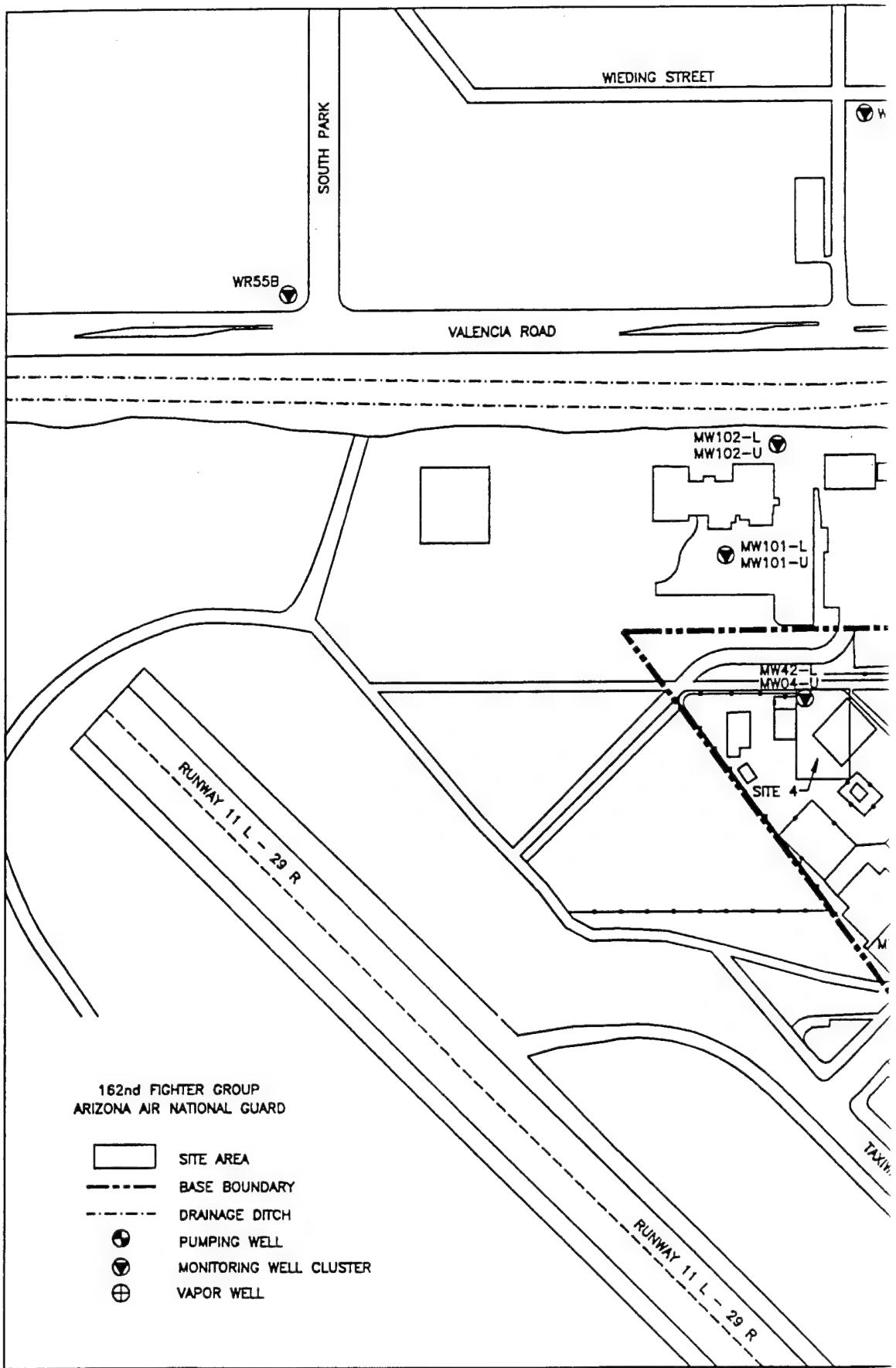


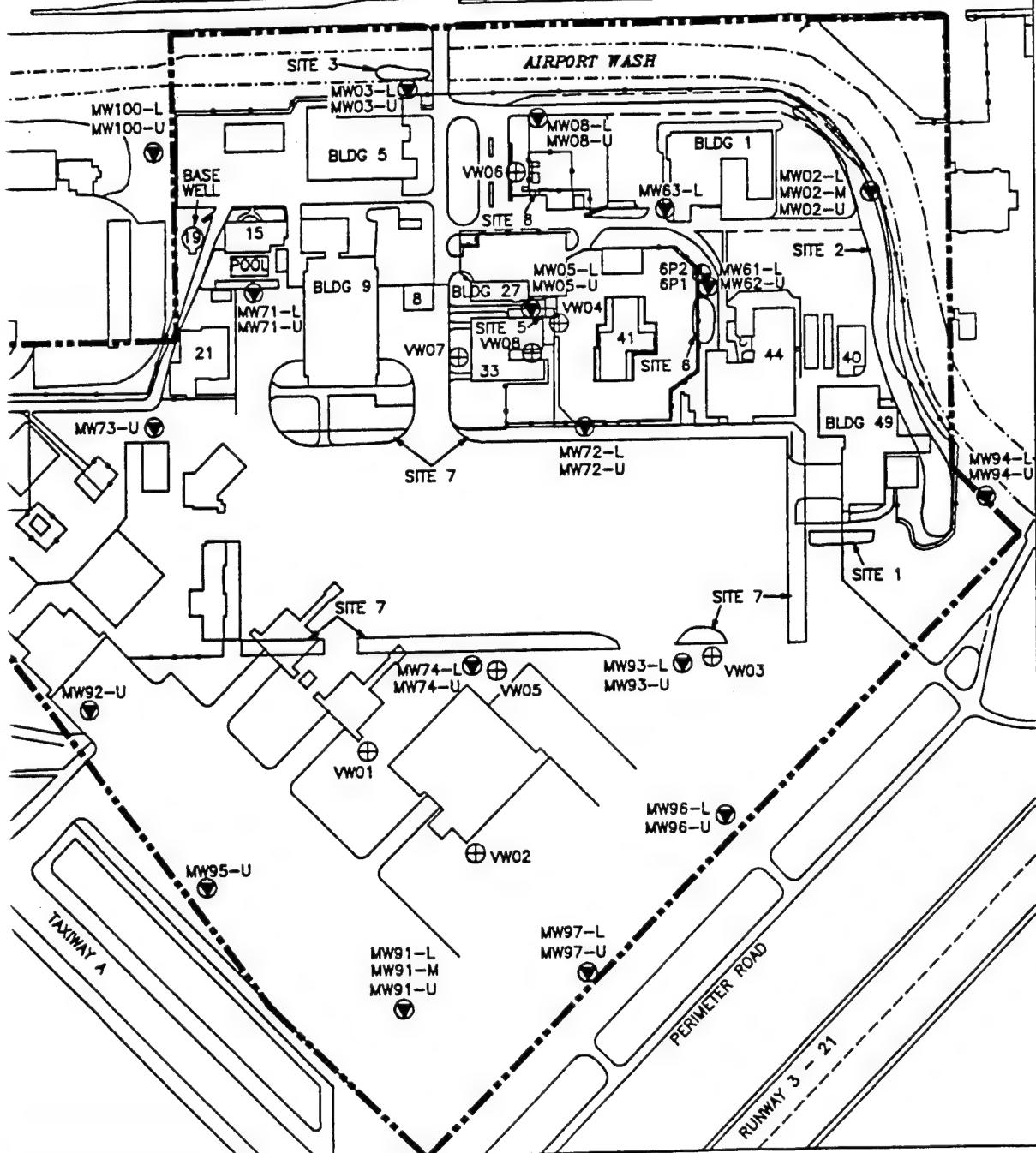
FIGURE 2-1

WIEDING STREET

KESTLER 1
KESTLER 2

WR72

VALENCIA ROAD

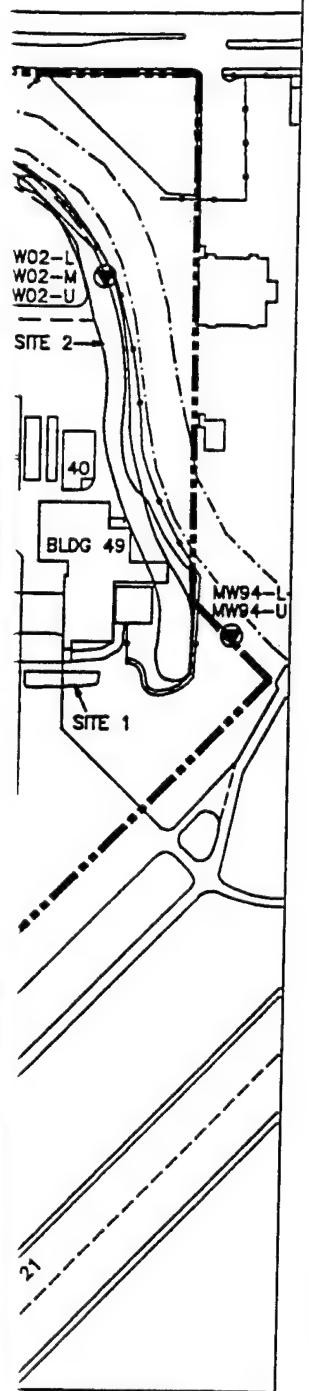


LL LOCATION MAP

2

ERM

6 JUNE 1981



(3)



6 JUNE 1997

Each on-Base monitoring well was purged using a 2-inch, stainless steel, submersible pump. At least three well volumes were purged prior to ground water sample collection. The temperature, specific conductivity, and pH of ground water were recorded during the purging process to ensure their stabilization prior to sample collection. Ground water samples were collected from each monitoring well with the 2-inch submersible pumps. Permanent pumps in the two private wells (Kestler 1 and Kestler 2) were activated by the well owner and allowed to run for at least 2 hours prior to sampling.

All samples were collected in pre-preserved, 40-milliliter glass, sample vials. All samples were labeled in the field and placed into ice-chilled coolers immediately following their collection. Chain-of-Custody Records were prepared and included in the cooler that was delivered to the analytical laboratory, copies of these records are attached in Appendix A.

2.4 Ground Water Analyses

Ground water samples collected by ERM were analyzed for volatile organic compounds (VOCs) using the United States Environmental Protection Agency Method 8010 by Del Mar Laboratory under subcontract to Quanterra Environmental Services of Santa Ana, California. Del Mar Laboratory was utilized by Quanterra Environmental Services due to laboratory work overload.

Ground water samples collected by Tucson Water personnel from monitoring wells WR-055B and WR-072S were analyzed for VOCs using United States Environmental Protection Agency Method 524.2.

2.5 Quality Assurance/Quality Control Procedures

Quality assurance/quality control procedures followed during the collection of ground water samples are outlined in ERM's *Final Workplan for Ground Water Monitoring* (August 1996). Field quality assurance/quality control samples collected during ground water monitoring activities included the following:

- Trip blank collected at the frequency of one per shipped cooler per day.
- Field and equipment blanks were collected at the frequency of 10 percent of the number of original samples. American Society for

Testing and Materials Type II water was used during decontamination activities.

- Duplicate samples were collected at the frequency of 10 percent of the total number of samples collected. Three duplicate samples were collected during the December 1996 ground water monitoring round at monitoring wells MW71-L, MW97-L, and MW102-L.
- One matrix spike/matrix spike duplicate sample was designated for every 20 samples collected. One matrix spike/matrix spike duplicate sample was collected at MW96-L during the December 1996 ground water monitoring round.
- Daily pH checks were conducted to ensure that all samples were preserved to pH 2 or less.

SECTION 3.0**RESULTS AND DISCUSSION**

This section provides a discussion of the results of the ground water level and ground water sampling activities performed during the December 1996 semi-annual ground water monitoring round at the AANG Base.

3.1 Ground Water Levels

Ground water elevations were calculated based on ground water levels measured in the AANG Base monitoring wells during the December 1996 monitoring event. Monitoring well construction details are summarized in Table 3-1. Ground water elevation data are summarized in Table 3-2.

ERM prepared ground water elevation contour maps based on ground water level data collected during December 1996 for the upper and lower subunits of the upper regional aquifer (Figures 3-1 and 3-2). Both maps show a general northwest direction of ground water flow. This is consistent with previous ground water level measurements at the AANG Base.

Ground water elevations measured in both upper and lower subunits showed that elevations have generally increased since the previous sampling round in June 1996. The average increase was measured to be approximately 0.7 feet.

3.2 Ground Water Quality

Analytical data reports and Chain-of-Custody Records for ground water samples collected during the December 1996 ground water monitoring round are included in Appendix A. A summary of ground water analyses for trichloroethylene (TCE) is included in Table 3-3.

TCE was not detected in samples collected from private wells identified as Kestler 1 and Kestler 2 or in Tucson Water monitoring well WR-055B. TCE was detected at a concentration of 2.4 micrograms per

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TABLE 3-1

*Monitoring Well Construction Data
162nd Fighter Wing, Arizona Air National Guard
Tucson International Airport
Tucson, Arizona*

Monitoring Well Identifier	Easting (feet)	Northing (feet)	Measuring Point Elevation (feet above mean sea level)	Total Depth (feet below measuring point)	Screened Interval (feet)
MW02-U	800623.89	413427.35	2555.96	101.00	85.5-95.5
MW02-M	800627.31	413416.53	2555.98	117.00	111.5-116.5
MW02-L	800630.49	413407.07	2556.33	138.50	128-138
MW03-U	779628.17	413632.95	2548.98	100.91	91.5-100.9
MW03-L	799643.52	413632.71	2549.30	136.56	127-136.56
MW04-U	798719.37	412959.88	2548.73	100.78	95.5-100.78
MW42-L	798710.66	412950.34	2548.57	141.65	132.7-141.65
MW05-U	799891.85	413171.63	2551.21	101.03	91.0-101.03
MW05-L	799902.49	413172.30	2551.21	136.82	128.0-136.82
MW08-U	799906.47	413567.98	2551.16	103.00	88-98
MW08-L	799918.87	413567.70	2551.18	138.00	127.8-137.8
MW61-L	800281.75	413214.18	2553.28	158.00	133-143
MW62-U	800270.57	413210.95	2553.32	104.00	93.8-103.8
MW63-L	800189.29	413376.51	2554.12	135.00	130-135
MW71-U	799312.91	413216.71	2550.96	103.70	89.0-103.70
MW71-L	799298.90	413215.95	2550.98	133.00	122.5-133.0
MW72-U	800015.82	412919.60	2554.31	98.86	92.5-98.86
MW72-L	800026.36	412919.02	2554.48	137.19	133.0-137.19
MW73-U	799094.82	412933.29	2550.27	109.13	99.5-109.13
MW74-U	799787.64	412421.42	2555.31	99.32	89.5-99.32
MW74-L	799773.04	412421.14	2555.58	134.55	125.0-134.55
MW91-U	799626.13	411720.20	2560.36	98.00	92.5-97.5
MW91-M	799625.47	411710.10	2560.47	120.00	114.7-119.7
MW91-L	799624.78	411699.68	2560.49	146.00	136-146
MW92-U	798927.93	412333.71	2554.96	98.50	93.5-98.5
MW93-U	800229.85	412430.32	2558.75	96.95	90.5-96.95
MW93-L	800228.32	412420.22	2558.81	139.23	125.0-139.23
MW94-U	800857.38	412774.59	2557.84	106.50	90.5-106.50
MW94-L	800876.83	412762.31	2557.94	149.40	135.0-149.40

FINAL**TABLE 3-1**
(continued)*Monitoring Well Construction Data*
162nd Fighter Wing, Arizona Air National Guard
Tucson International Airport
Tucson, Arizona

Monitoring Well Identifier	Easting (feet)	Northing (feet)	Measuring Point Elevation (feet above mean sea level)	Total Depth (feet below measuring point)	Screened Interval (feet)
MW95-U	799195.49	411941.51	2558.54	107.00	102-107
MW96-U	800333.05	412088.42	2560.10	102.80	94.0-102.80
MW96-L	800340.20	412095.58	2560.13	137.00	126.0-137.0
MW97-U	800024.07	411778.36	2559.91	96.40	92.0-96.40
MW97-L	800015.24	411769.53	2559.95	136.15	127.0-136.15
MW100-U	799127.549	413498.592	2544.88	97.00	87.0-97.0
MW100-L	799128.887	413509.278	2544.86	130.00	120.0-130.0
MW101-U	798487.912	413325.133	2542.79	97.00	87.0-97.0
MW101-L	798508.635	413326.864	2542.24	140.00	125.0-135.0
MW102-U	798655.992	413537.482	2543.27	97.00	87.0-97.0
MW102-L	798636.869	413537.992	2542.89	130.00	120.0-130.0
WR-055B	--	--	2536.30	233.00	213.0-233.0
WR-072S	--	--	2544.80	190.00	110.0-190.0
KESTLER 1	--	--	--	--	--
KESTLER 2	--	--	--	--	--

-- = not available

TABLE 3-2
Ground Water Elevation Data, June 1996 and December 1996
162nd Fighter Wing, Arizona Air National Guard
Tucson International Airport
Tucson, Arizona

Monitoring Well Identifier	Casing Elevation (feet above msl)	June 1996		November/December 1996		Change in Elevation June to December 1996 (feet)
		Depth to Ground Water (feet bmp)	Ground Water Elevation (feet above msl)	Depth to Ground Water (feet bmp)	Ground Water Elevation (feet above msl)	
MW02-U	2555.96	91.35	2464.61	90.44	2465.52	0.91
MW02-M	2555.99	91.43	2464.56	90.47	2465.52	0.96
MW02-L	2556.34	92.93	2463.41	92.63	2463.71	0.30
MW03-U	2548.98	85.47	2463.51	83.96	2465.02	1.51
MW03-L	2549.30	86.78	2462.52	86.25	2463.05	0.53
MW04-U	2548.73	85.19	2463.54	84.10	2464.63	1.09
MW42-L	2548.57	86.96	2461.61	86.21	2462.36	0.75
MW05-U	2551.18	86.16	2465.02	85.18	2466.00	0.98
MW05-L	2551.20	87.25	2463.95	86.78	2464.42	0.47
MW08-U	2551.20	87.11	2464.09	85.75	2465.45	1.36
MW08-L	2551.21	88.28	2462.93	87.78	2463.43	0.50
MW61-L	2553.31	89.56	2463.75	89.18	2464.13	0.38
MW62-U	2553.34	88.23	2465.11	87.31	2466.03	0.92
MW63-L	2554.15	90.64	2463.51	90.27	2463.88	0.37
MW71-U	2550.96	87.05	2463.91	85.83	2465.13	1.22
MW71-L	2550.98	87.73	2463.25	87.06	2463.92	0.67
MW72-U	2554.31	88.52	2465.79	87.78	2466.53	0.74
MW72-L	2554.48	88.62	2465.86	88.15	2466.33	0.47
MW73-U	2550.27	86.02	2464.25	85.10	2465.17	0.92
MW74-U	2555.31	88.54	2466.77	88.09	2467.22	0.45
MW74-L	2555.58	88.64	2466.94	88.22	2467.36	0.42
MW91-U	2560.36	93.18	2467.18	92.88	2467.48	0.30
MW91-M	2560.47	93.27	2467.20	92.96	2467.51	0.31
MW91-L	2560.49	93.23	2467.26	92.95	2467.54	0.28
MW92-U	2554.96	89.55	2465.41	89.14	2465.82	0.41
MW93-U	2558.75	91.20	2467.55	90.81	2467.94	0.39
MW93-L	2558.81	91.43	2467.38	91.06	2467.75	0.37
MW94-U	2557.84	90.60	2467.24	89.77	2468.07	0.83
MW94-L	2557.94	92.31	2465.63	92.18	2465.76	0.13
MW95-U	2558.54	92.27	2466.27	91.94	2466.6	0.33
MW96-U	2560.10	91.98	2468.12	91.68	2468.42	0.30
MW96-L	2560.13	91.98	2468.15	91.68	2468.45	0.30
MW97-U	2559.91	92.08	2467.83	91.74	2468.17	0.34
MW97-L	2559.95	92.09	2467.86	91.76	2468.19	0.33
MW100-U	2544.88	82.02	2462.86	80.54	2464.34	1.48
MW100-L	2544.86	82.88	2461.98	82.11	2462.75	0.77
MW101-U	2542.79	80.81	2461.98	79.32	2463.47	1.49
MW101-L	2542.24	81.33	2460.91	80.51	2461.73	0.82
MW102-U	2543.27	81.54	2461.73	79.82	2463.45	1.72
MW102-L	2542.89	81.84	2461.05	81.06	2461.83	0.78

bmp = below measuring point

msl = mean sea level

** = not measured

TABLE 3-3
Trichloroethylene Detected in Ground Water
162nd Fighter Wing, Arizona Air National Guard
Tucson International Airport
Tucson, Arizona

Year	TCE Concentrations in micrograms per liter							
	1989				1990			
Monitoring Well Identifier	June	July	October	November	April	July	October	
MW02-U	ND	ND	NS	NS	ND	ND	ND	
MW02-M	ND	1.3	0.9	1.0	ND	ND	ND	
MW02-L	ND	ND	NS	NS	ND	ND	ND	
MW03-U	ND	ND	NS	NS	ND	ND	ND	
MW03-L	ND	ND	NS	NS	ND	ND	ND	
MW04-U	5.5	5.4	6.4	6.1	6.3	7.5	6.4/6.4	
MW42-L	ND	ND	NS	NS	3.6	6.6/7.4	9.2	
MW05-U	0.8	1.2	1.4/1.5	1.2	1.4	2.4	1.6	
MW05-L	5.4	4.3	4.3	5.2	4.3	3.5	4.6	
MW61-L	ND	ND	NS	NS	ND	ND	ND	
MW62-U	ND	ND	NS	NS	ND	ND	ND	
MW63-L	ND	ND	NS	NS	ND	ND	ND	
MW71-U	**	**	5.2	5.3/6.2	4.3	5.3	4.3	
MW71-L	**	**	41.0	NA	35.0/35.0	35.0	29.0/31.0	
MW72-U	**	**	2.0/2.2	2.1	2.1	2.2	1.8	
MW72-L	**	**	3.7	4.2	3.4	2.5/2.6	2.6	
MW73-U	**	**	18.0	21.0	14.0/14.0	19.0	17.0/19.0	
MW74-U	**	**	46.0	37.0/38.0	38.0	28.0	27.0/28.0	
MW74-L	**	**	32.0	26.0	19.0/20.0	21.0	16.0	
MW08-U	ND	ND	NS	NS	ND	ND	ND	
MW08-L	ND	ND	NS	NS	ND	ND	ND	
MW91-U	ND	ND	NS	ND	ND	ND	ND	
MW91-M	ND	ND	NS	ND	ND	ND	ND	
MW91-L	ND	ND	NS	ND	ND	ND	ND	
MW92-U	11.0	16.0	20.0	18.0	16.0	12.0	16.0	
MW93-U	0.6	ND	0.6	0.6	ND	ND	ND	
MW93-L	7.3	9.6	13.0	10.0	9.1	7.7	8.1	
MW94-U	ND	ND	NS	NS	ND	ND	ND	
MW94-L	ND	ND	NS	NS	ND	ND	ND	
MW95-U	**	**	ND	ND	ND	ND	ND	
MW96-U	**	**	13.0	13.0	11.0	8.9/9.4	10.0	
MW96-L	**	**	21.0	20.0	15.0/16.0	12.0	15.0	
MW97-U	**	**	0.9	0.6	ND	ND	ND	
MW97-L	**	**	1.5	1.6	ND	1.0	ND	
MW100-U	**	**	**	**	**	**	**	
MW100-L	**	**	**	**	**	**	**	
MW101-U	**	**	**	**	**	**	**	
MW101-L	**	**	**	**	**	**	**	
MW102-U	**	**	**	**	**	**	**	
MW102-L	**	**	**	**	**	**	**	
BASE	NS	26.0	31.0	29.0	19.0	19.0/20.0	17.0/19.0	
WR-055B	NS	NS	NS	NS	NS	NS	NS	
WR-072S	NS	NS	NS	NS	NS	NS	NS	
KESTLER 1	NS	NS	NS	NS	NS	NS	NS	
KESTLER 2	NS	NS	NS	NS	NS	NS	NS	

Values separated by a slash (/) indicate results from original/duplicate samples.

ND = not detected; NS = not sampled; NA = not analyzed by laboratory

J = Estimated quantity; quality control criteria not met.

** = Wells installed after sampling event

= Reanalysis

* = Split sample result

U = Upper subunit monitoring well

L = Lower subunit monitoring well

M = Middle subunit monitoring well

TCE = trichloroethylene

TABLE 3-3 (Continued)

*Trichloroethylene Detected in Ground Water
162nd Fighter Wing, Arizona Air National Guard
Tucson International Airport
Tucson, Arizona*

Year	TCE Concentrations in micrograms per liter					
	1993		1994		1995	
Monitoring Well Identifier	February	September	February	October	June	December
MW02-U	ND	NS	NS	NS	NS	NS
MW02-M	ND	NS	NS	NS	NS	NS
MW02-L	ND	NS	NS	NS	NS	NS
MW03-U	ND	ND	0.11	0.13 J	ND/ND*	NS
MW03-L	1.2	0.8	1.4	ND	ND/ND*	29.0
MW04-U	13.8	8.5	8.7	6.0	12.0/10.0*	7.5
MW42-L	21.0/20.0	15.0	17.0	17.0	19.0/17.0*	35.0
MW05-U	8.4	4.5/3.0	8.5	11.0	11.0/9.0*	15.0
MW05-L	4.6	3.7	2.7	4.3	5.9/5.0*	16.0/18.0
MW61-L	ND	NS	NS	NS	NS	NS
MW62-U	ND	NS	NS	NS	NS	NS
MW63-L	ND	NS	NS	NS	NS	NS
MW71-U	7.1/7.1	5.0	7.2	6.8	8.5/7.0*	7.9
MW71-L	25.0	31.0/16.0	15.0	14.0	20/20	32.0
MW72-U	3.0	1.9	2.8	3.2	3.8/3.0*	1.6
MW72-L	2.6	2.3	2.6	2.8	3.1	38.0/42.0#
MW73-U	25.0	34.0	16.0/17.0	17.0	15.0	23.0
MW74-U	29.0/32.0	25.0	15.0	1.2/1.1	11.0	20.0
MW74-L	18.0	13.0	14.0	15.0	20.0	23.0/29.0
MW08-U	ND	NS	NS	NS	NS	NS
MW08-L	ND	NS	NS	NS	NS	NS
MW91-U	ND	NS	NS	NS	NS	NS
MW91-M	ND	NS	NS	NS	NS	NS
MW91-L	ND	NS	NS	NS	NS	NS
MW92-U	15.0	8.8	9.2/8.9	9.1	11.0	21.0
MW93-U	2.1	1.3	Sample Broken	1.6	2.5	13.0
MW93-L	9.1	8.8	9.0/8.8	11.0	10.0	18.0
MW94-U	ND	ND	ND	ND	ND	17.0
MW94-L	2.5	0.5	0.6	0.5	1.3/1.2	12.0
MW95-U	ND	NS	NS	NS	NS	NS
MW96-U	19.0	14.0/14.0	21.0	15.0/14.0	16.0	40.0
MW96-L	ND/ND	15.0	20.0	17.0	22/22	34.0
MW97-U	ND	0.3	0.3	ND	1.0	1.8
MW97-L	ND	ND	0.6	0.5	ND/ND	25.0
MW100-U	**	**	**	**	**	19.0/15.0
MW100-L	**	**	**	**	**	20.0
MW101-U	**	**	**	**	**	25.0
MW101-L	**	**	**	**	**	12.0
MW102-U	**	**	**	**	**	27.0
MW102-L	**	**	**	**	**	18.0
BASE	NS	NS	NS	NS	NS	NS
WR-055B	ND	NS	NS	0.5 J	0.6 (May 1995)	ND (August 1995)
WR-072S	0.3	ND	NS	0.5 J	ND (May 1995)	0.7 (November 1995)
KESTLER 1	ND	0.1	ND	ND	ND/ND*	ND
KESTLER 2	ND	0.1	ND	ND	ND/ND*	ND

Values separated by a slash (/) indicate results from original/duplicate samples.

ND = not detected; NS = not sampled; NA = not analyzed by laboratory

J = Estimated quantity; quality control criteria not met.

** = Wells installed after sampling event

= Reanalysis

* = Split sample result

U = Upper subunit monitoring well

L = Lower subunit monitoring well

M = Middle subunit monitoring well

TCE = trichloroethylene

TABLE 3-3 (Continued)
Trichloroethylene Detected in Ground Water
162nd Fighter Wing, Arizona Air National Guard
Tucson International Airport
Tucson, Arizona

Year	TCE concentrations in micrograms per liter		
	1996		
Monitoring Well Identifier	January	June	November/December
MW02-U	NS	1.0	NS
MW02-M	NS	NS	NS
MW02-L	NS	5.8	NS
MW03-U	NS	ND/ND	ND
MW03-L	NS	5.0	ND
MW04-U	NS	NS	11.0
MW42-L	NS	NS	16.0
MW05-U	NS	13.0	9.9
MW05-L	NS	8.6	7.8
MW61-L	NS	NS	NS
MW62-U	NS	NS	NS
MW63-L	NS	NS	NS
MW71-U	NS	NS	9.3
MW71-L	NS	NS	14/12
MW72-U	NS	3.5	3.6
MW72-L	4.3/6.6*	12.0	3.0
MW73-U	NS	NS	14.0
MW74-U	NS	11.0	3.9
MW74-L	NS	16.0	15.0
MW08-U	NS	NS	NS
MW08-L	NS	5.7/4.8	NS
MW91-U	NS	NS	NS
MW91-M	NS	NS	NS
MW91-L	NS	1.9	NS
MW92-U	NS	11.0	9.8
MW93-U	NS	1.9	3.1
MW93-L	NS	18.0	19.0
MW94-U	ND	ND	ND
MW94-L	NS	3J	ND
MW95-U	NS	ND	NS
MW96-U	NS	16.0	18.0
MW96-L	NS	20.0	22.0
MW97-U	NS	ND	ND
MW97-L	NS	2.1	1.1/1.0
MW100-U	NS	5.6	7.1
MW100-L	NS	14.0	16.0
MW101-U	NS	4.0	6.6
MW101-L	NS	10.0	12.0
MW102-U	NS	18/17	26.0
MW102-L	NS	11.0	12/11
BASE	NS	NS	NS
WR-055B	NS	ND	ND
WR-072S	NS	0.9/1.0	2.4
KESTLER 1	NS	ND	ND
KESTLER 2	NS	ND	ND

Values separated by a slash (/) indicate results from original/duplicate samples.

ND = not detected; NS = not sampled; NA = not analyzed by laboratory

J = Estimated quantity; quality control criteria not met.

* = Wells installed after sampling event

= Reanalysis

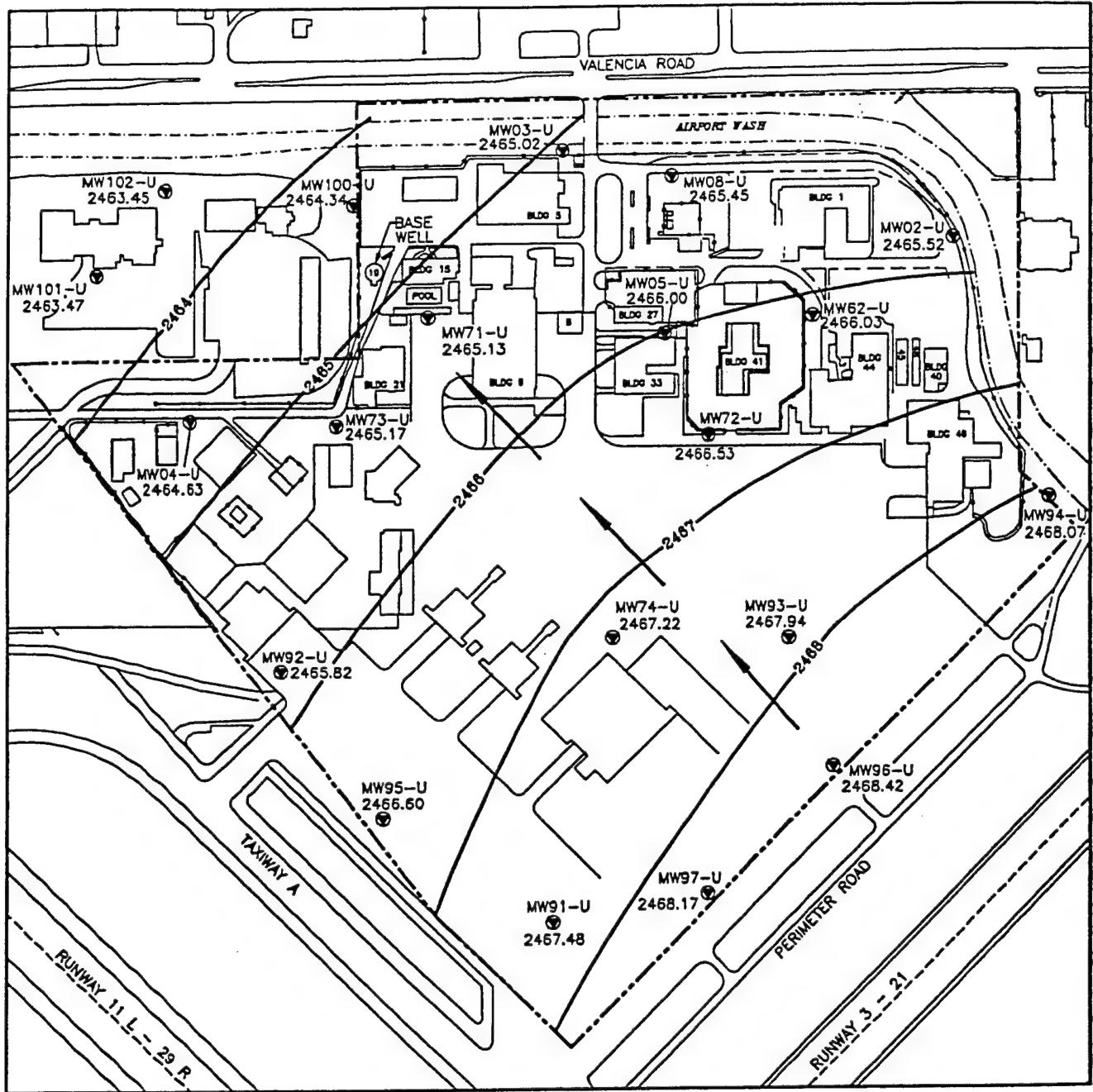
* = Split sample result

U = Upper subunit monitoring well

L = Lower subunit monitoring well

M = Middle subunit monitoring well

TCE = trichloroethylene



EXPLANATION

POTENIOMETRIC SURFACE (DECEMBER, 1996)

UPPER COMPLETIONS

- 2485 — CONTOUR INTERVAL = 1 ft
- — — BASE BOUNDARY
- - - DRAINAGE DITCH
- MONITORING WELL LOCATION
- GROUNDWATER FLOW DIRECTION
- 2468.17 GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL

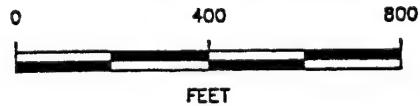
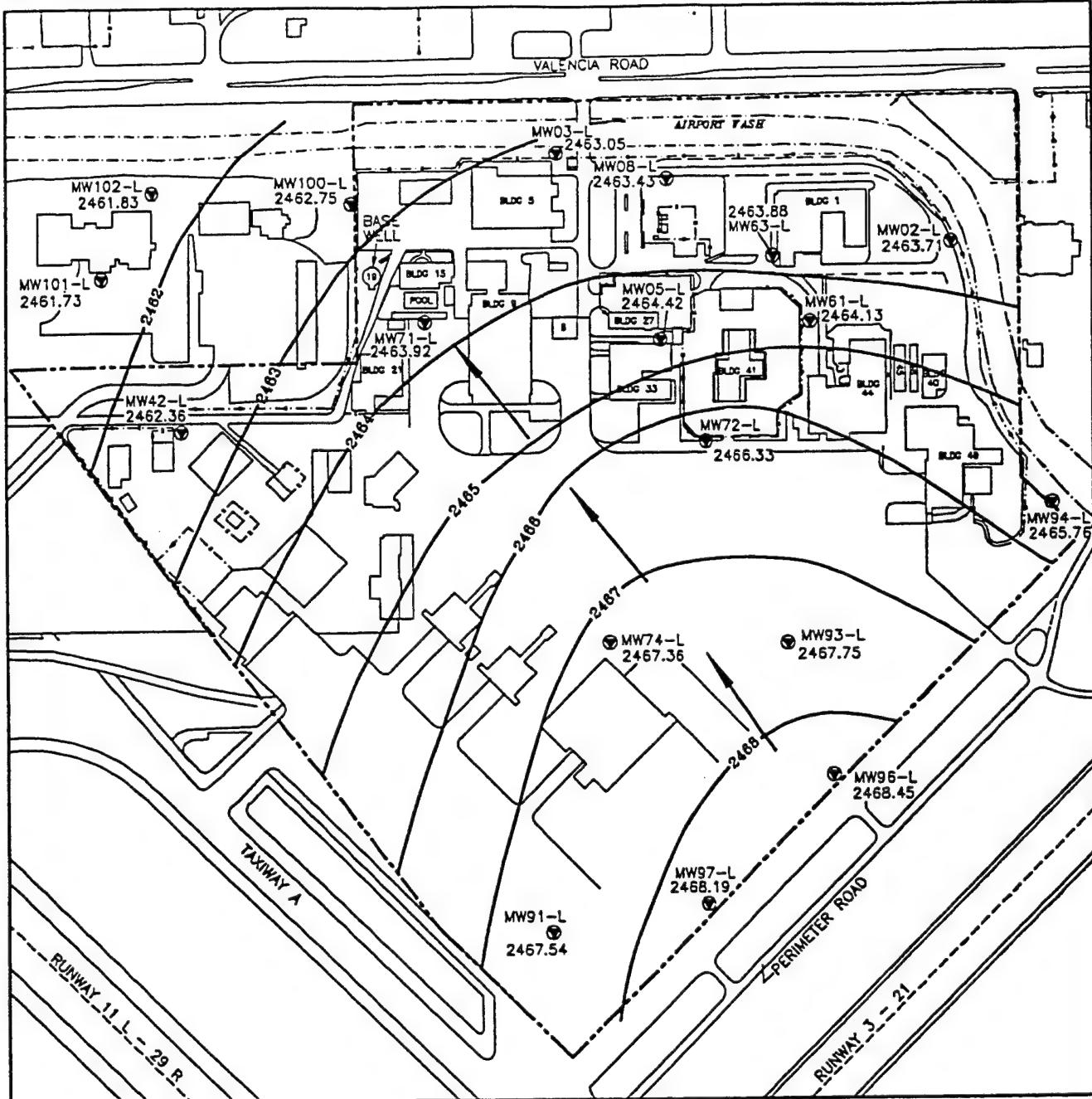


FIGURE 3-1

POTENIOMETRIC SURFACE OF THE
UPPER SUBUNIT OF THE UPPER
REGIONAL AQUIFER (DECEMBER 1996)



EXPLANATION

POTENTIOMETRIC SURFACE (DECEMBER, 1996)

- LOWER COMPLETIONS
- CONTOUR INTERVAL = 1 ft
- BASE BOUNDARY
- DRAINAGE DITCH
- MONITORING WELL LOCATION
- GROUNDWATER FLOW DIRECTION
- 2467.54 GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL

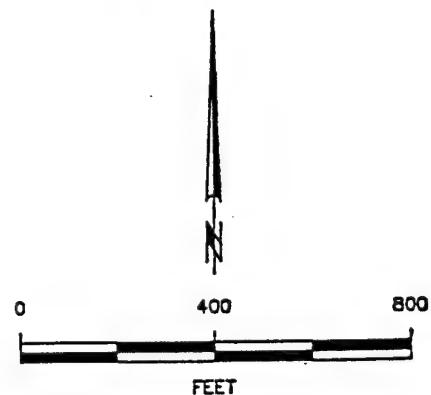


FIGURE 3-2

POTENTIOMETRIC SURFACE OF THE LOWER SUBUNIT OF THE UPPER REGIONAL AQUIFER (DECEMBER 1996)

liter ($\mu\text{g/l}$) in the ground water sample collected from Tucson Water monitoring well WR-072S. This well showed a concentration of 1.0 $\mu\text{g/l}$ for the June 1996 monitoring round.

TCE concentrations detected in ground water samples collected from upper subunit monitoring wells ranged from 3.1 to 26.0 $\mu\text{g/l}$. The highest concentration of TCE in upper subunit ground water was detected in the sample collected from monitoring well MW102-U. TCE concentrations detected in ground water samples collected from lower subunit monitoring wells ranged from 1.0 to 22.0 $\mu\text{g/l}$. The highest concentration of TCE in lower subunit ground water was detected in the sample collected from monitoring well MW96-L. TCE was not detected in ground water samples collected from monitoring wells MW03-U, MW03-L, MW94-U, MW94-L, or MW97-U. Figures 3-3 and 3-4 are isoconcentration contour maps showing the concentrations of TCE in the upper and lower ground water subunits, respectively. Figure 3-5 presents TCE concentration hydrographs for selected upper and lower subunit monitoring wells.

TCE concentrations detected in ground water samples were similar to those in previous sampling rounds with the exception of the December 1995 sampling round. As has been noted during previous monitoring rounds, the average TCE concentration in lower subunit ground water samples were generally higher than those detected in upper subunit ground water samples.

Chloroform and tetrachloroethylene (PCE) were the only additional VOCs detected in December 1996 ground water samples. Chloroform was detected at a concentration of 3.3 $\mu\text{g/l}$ in the ground water sample collected from upper subunit monitoring well MW100-U. PCE was detected in samples collected from the following five monitoring wells: MW03-L (1.8 $\mu\text{g/l}$), MW94U (2.1 $\mu\text{g/l}$), MW04-U (2.2 $\mu\text{g/l}$), MW71-U (2.8 $\mu\text{g/l}$), and MW72-U (4.1 $\mu\text{g/l}$). The concentrations of chloroform and PCE cited above do not exceed the current maximum contaminant levels of 5.7 $\mu\text{g/l}$ and 5.0 $\mu\text{g/l}$, respectively.

Review of incoming data from the laboratory indicated that samples collected on December 2, 1996, were analyzed 1 day beyond the project-specific holding time of 14 days. ERM investigated the cause of the missed holding time and instituted corrective actions with the laboratory. The results of the samples collected on December 2 were compared to both the previous sampling round as well as to the results of other samples collected during the same sampling round. There was no discernible impact of the missed holding time on the detected values based on trend analysis; therefore, the values were utilized in this report without qualification.

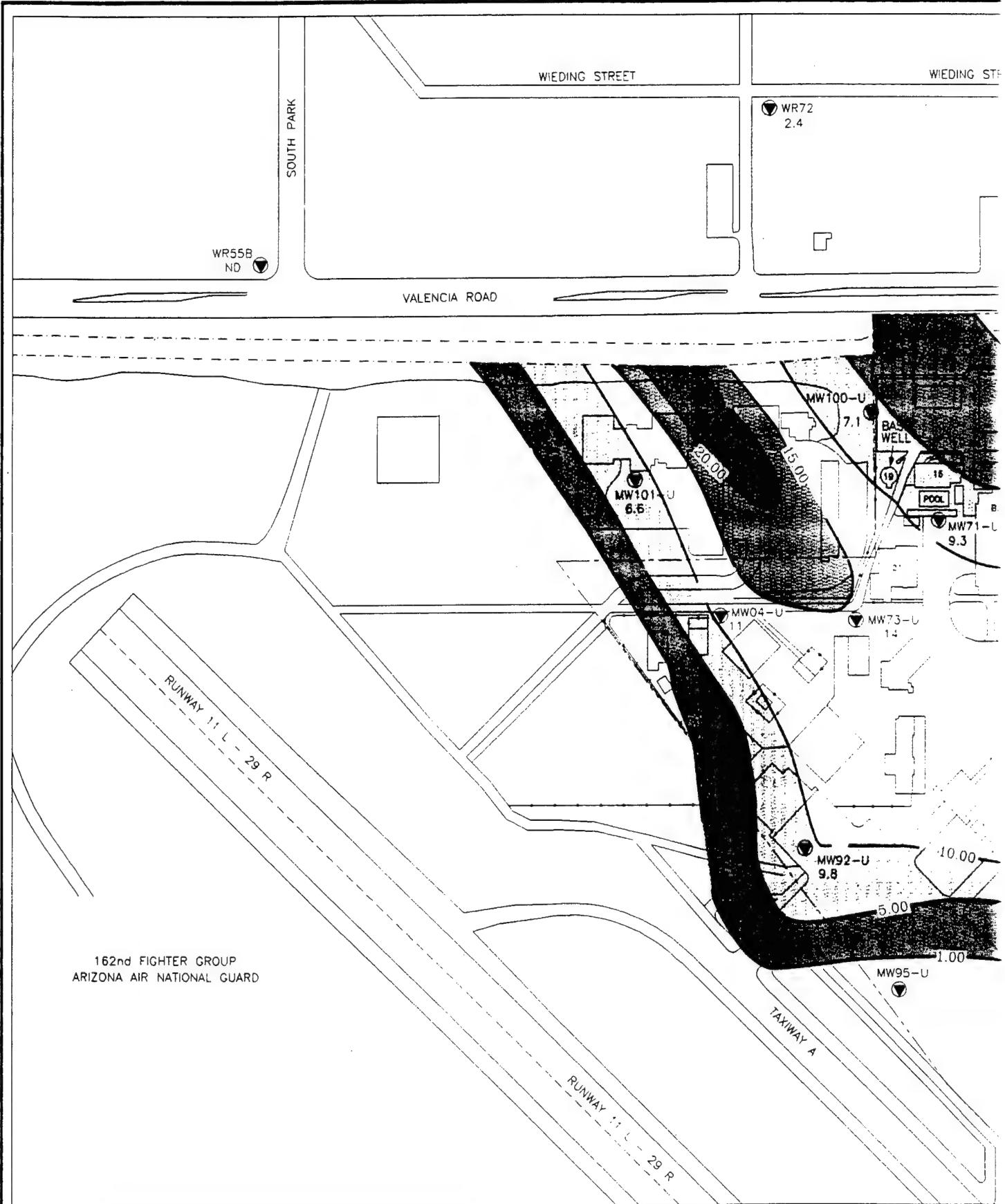
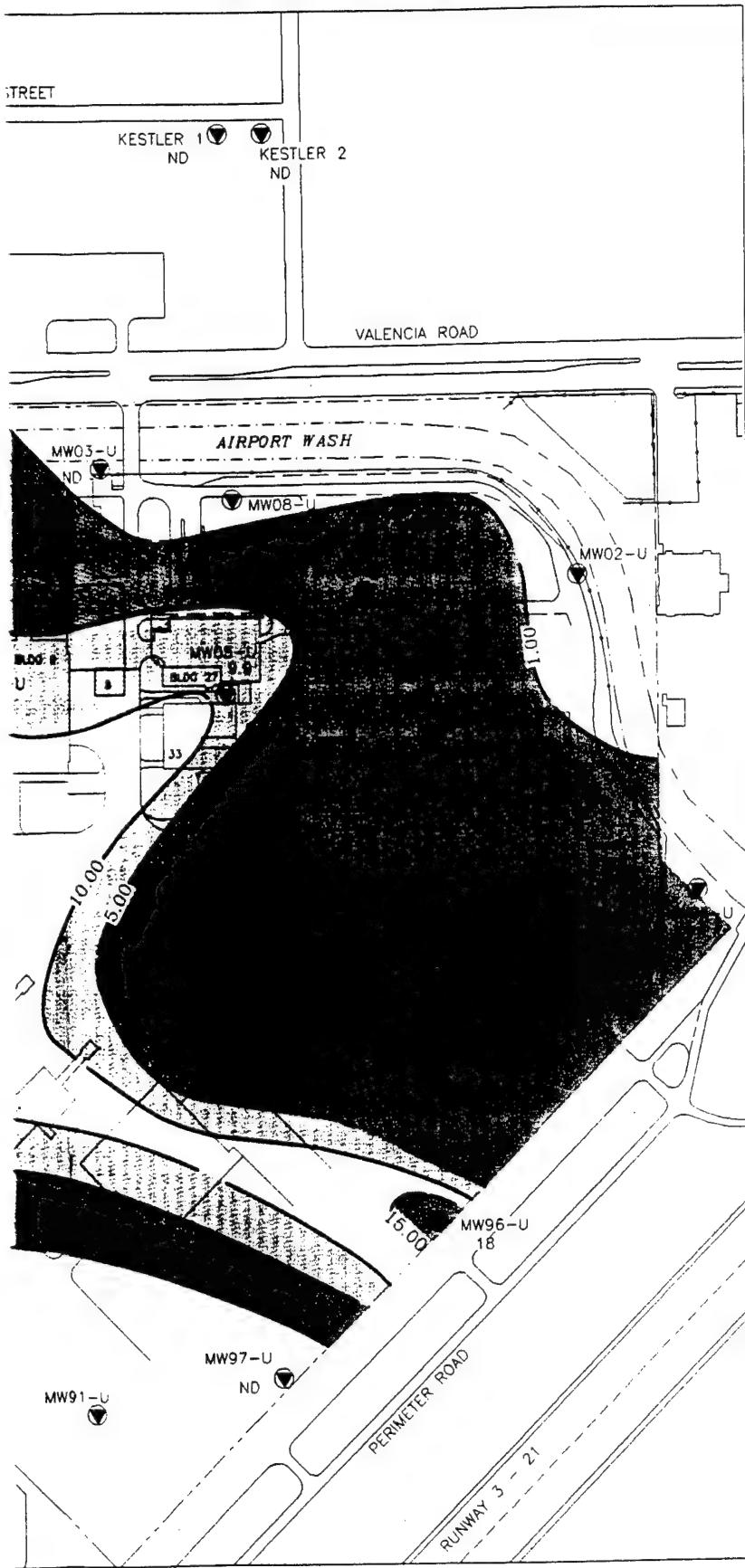


FIGURE 3-3

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①



EXPLANATION

—10.00— ISOCONCENTRATION CONTOUR
INTERVAL = 5 MICROGRAMS PER LITER
— — — — — BASE BOUNDARY
— — — — — DRAINAGE DITCH
MONITORING WELL LOCATION
6.6 TCE CONCENTRATION IN MICROGRAMS PER LITER
ND NONE DETECTED
TCE CONCENTRATIONS BETWEEN 1-5 MICROGRAMS PER LITER
TCE CONCENTRATIONS BETWEEN 5-10 MICROGRAMS PER LITER
TCE CONCENTRATIONS BETWEEN 10-15 MICROGRAMS PER LITER
TCE CONCENTRATIONS BETWEEN 15-20 MICROGRAMS PER LITER
TCE CONCENTRATIONS GREATER THAN 20 MICROGRAMS PER LITER

A horizontal scale bar with three numerical markings: 0, 350, and 700. The 0 is at the left end, 350 is in the middle, and 700 is at the right end. The distance between 0 and 350 is indicated by a short black line segment. The distance between 350 and 700 is indicated by a longer black line segment.

IN THE UPPER SUBUNIT
ER REGIONAL AQUIFER
(SEPTEMBER 1996)

2



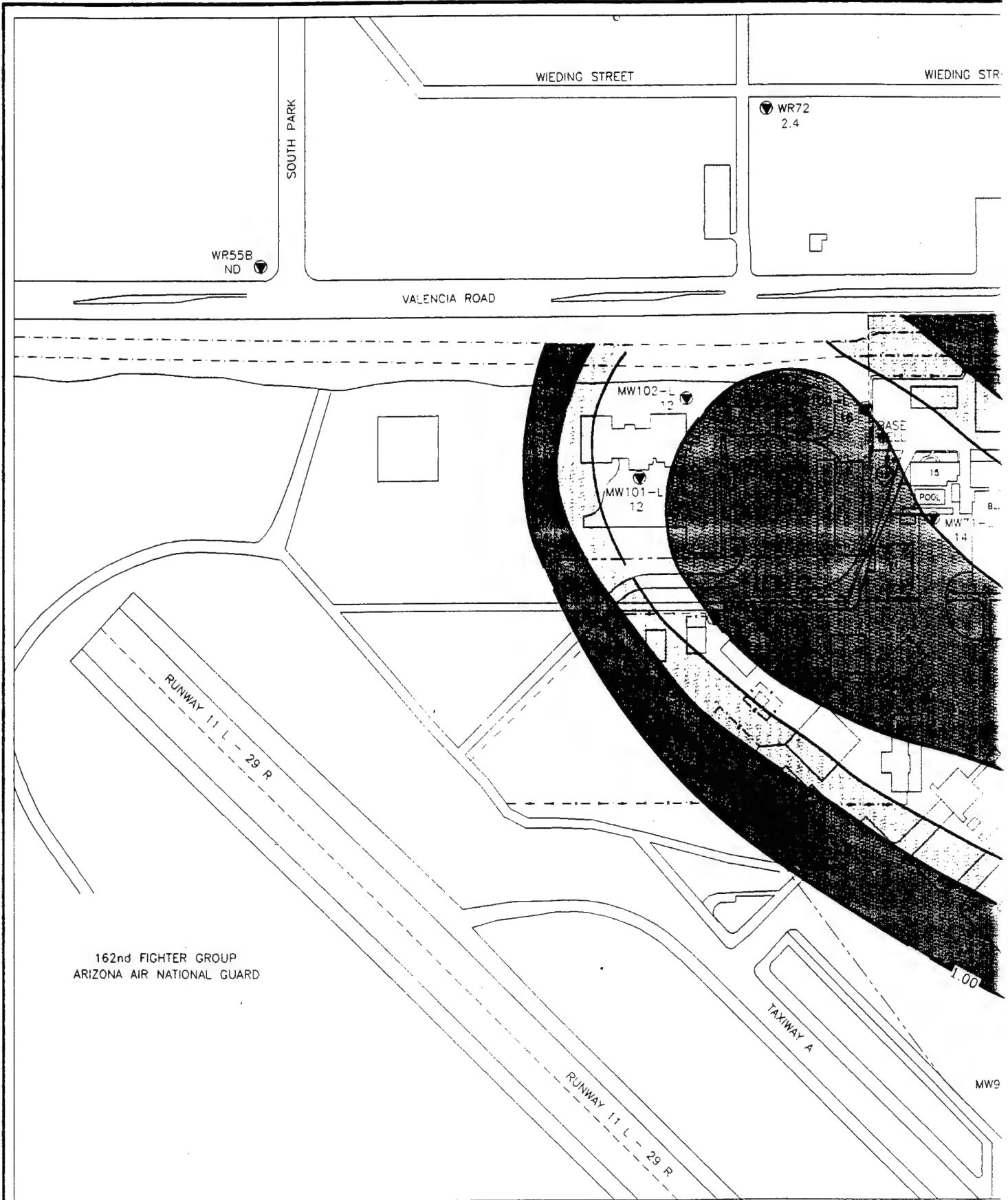


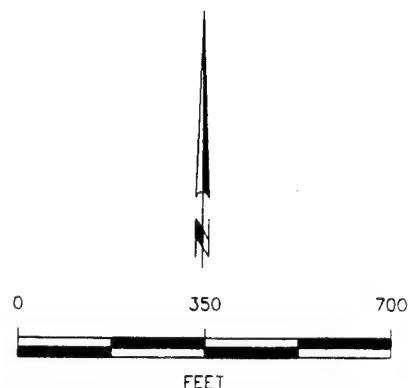
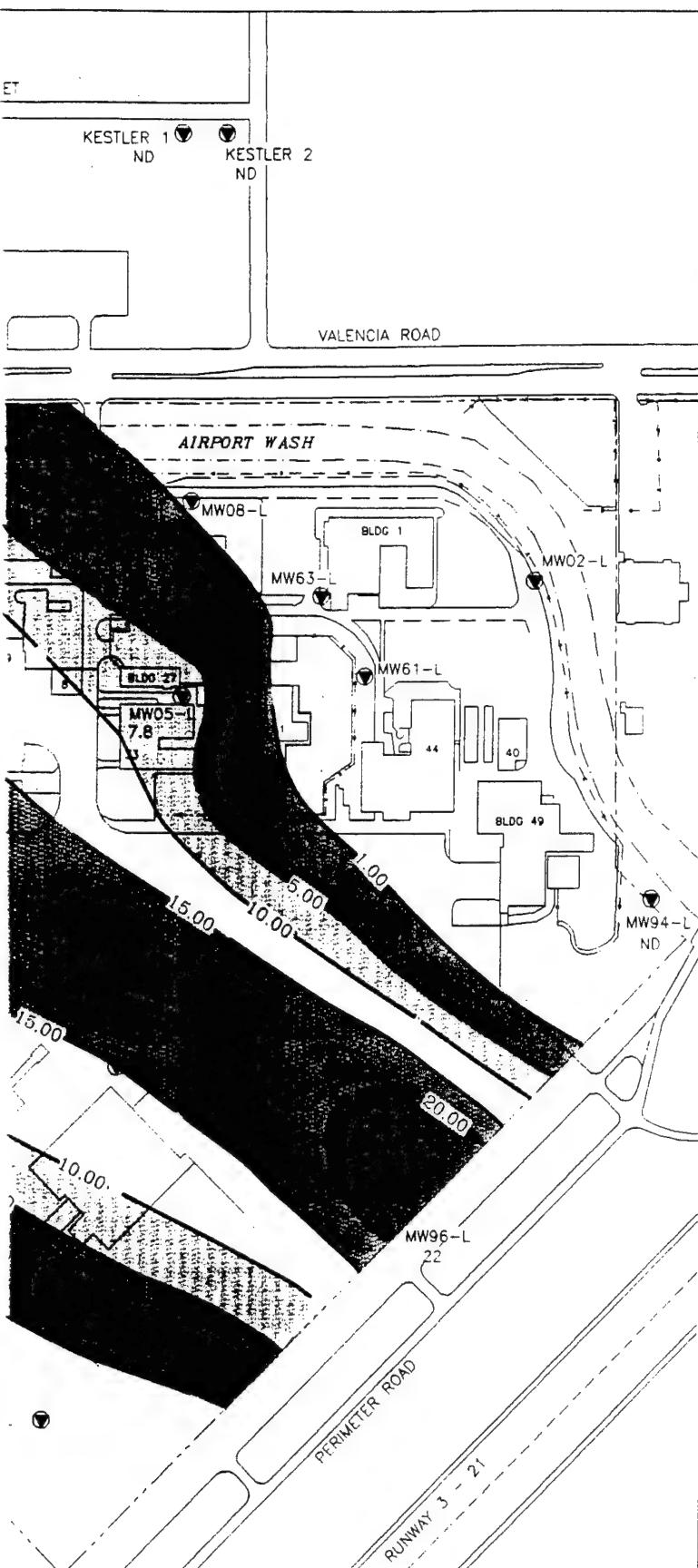
FIGURE 3-4

C:\ERM\TUANG\9709\9709F3-4



EXPLANATION

— 10.00 —	ISOCONCENTRATION CONTOUR INTERVAL = 5 MICROGRAMS PER LITER
— — —	BASE BOUNDARY
— - -	DRAINAGE DITCH
●	MONITORING WELL LOCATION
15	TCE CONCENTRATION IN MICROGRAMS PER LITER
ND	NONE DETECTED
■	TCE CONCENTRATIONS BETWEEN 1-5 MICROGRAMS PER LITER
■ ■ ■	TCE CONCENTRATIONS BETWEEN 5-10 MICROGRAMS PER LITER
■ ■ ■ ■ ■	TCE CONCENTRATIONS BETWEEN 10-15 MICROGRAMS PER LITER
■ ■ ■ ■ ■ ■	TCE CONCENTRATIONS BETWEEN 15-20 MICROGRAMS PER LITER
■ ■ ■ ■ ■ ■ ■	TCE CONCENTRATIONS GREATER THAN 20 MICROGRAMS PER LITER



'HE LOWER SUBUNIT
REGIONAL AQUIFER
BER 1996)

(2)

ERM

6 JUNE 1997

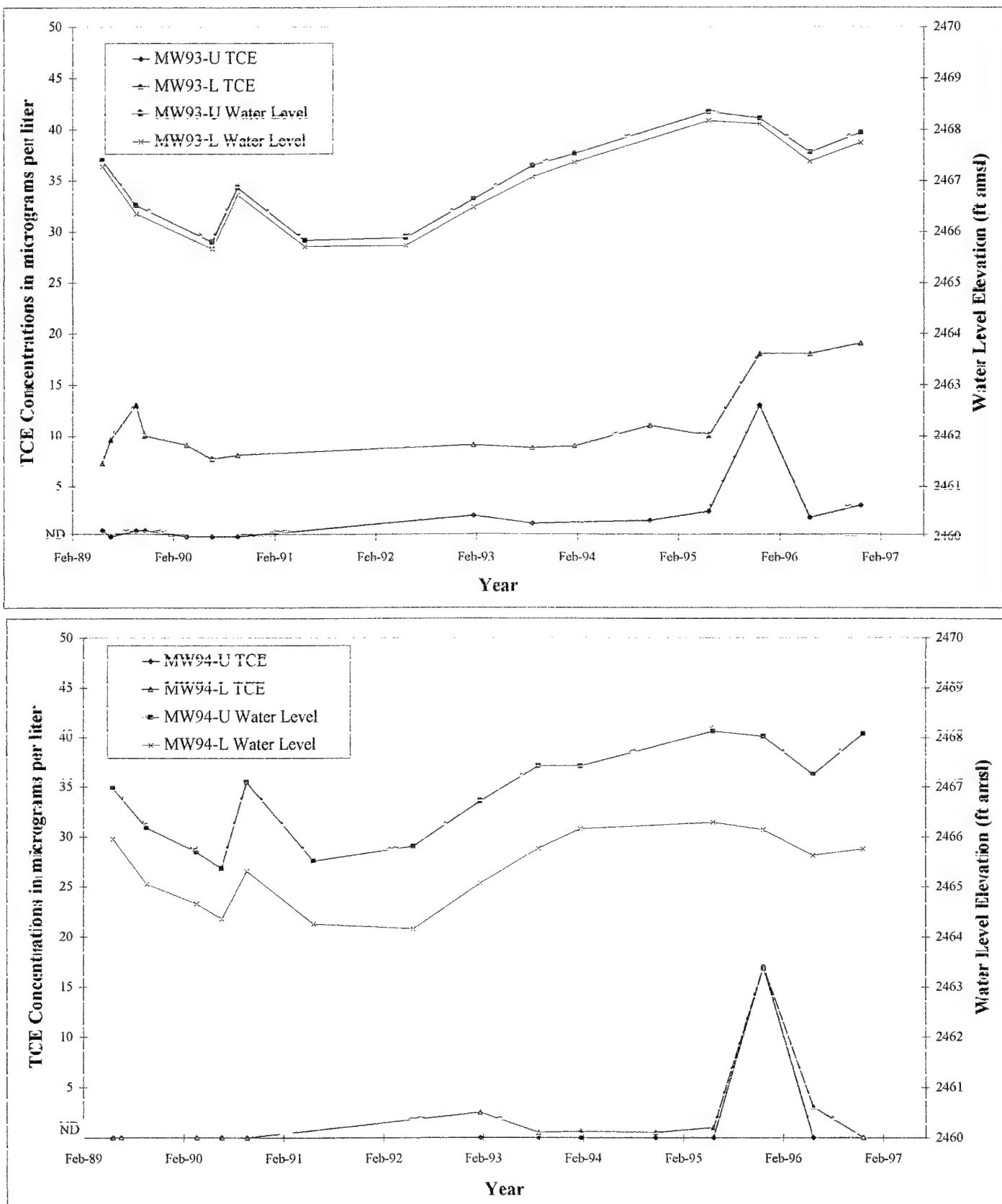


Figure 3-5
TCE Concentrations and Water Level Hydrographs for Selected Monitor Wells
Tucson Arizona Air National Guard Base

ND = Not Detected

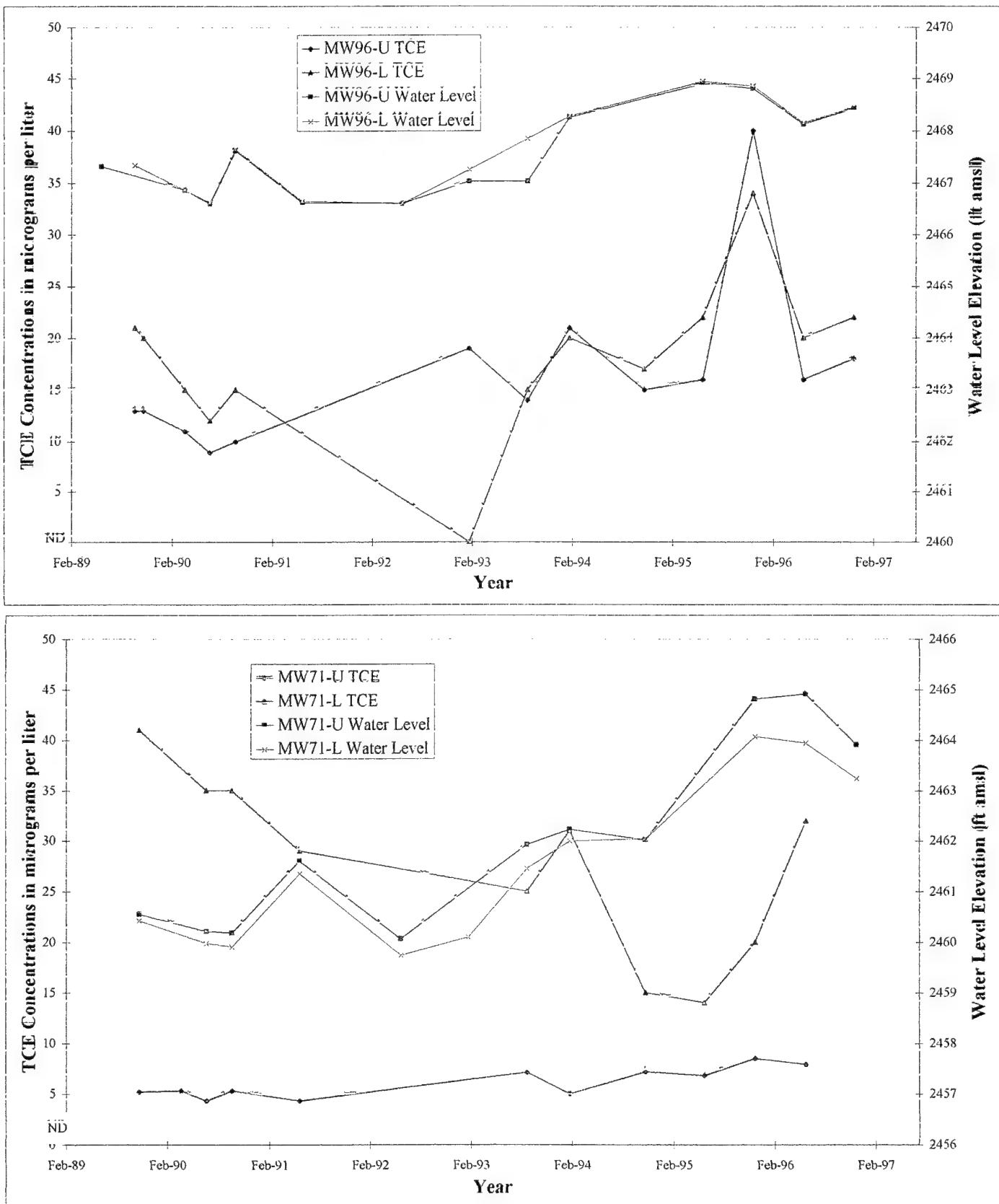


Figure 3.5
TCE Concentrations and Water Level Hydrographs for Selected Monitor Wells
Tucson Arizona Air National Guard Base

ND = Not Detected

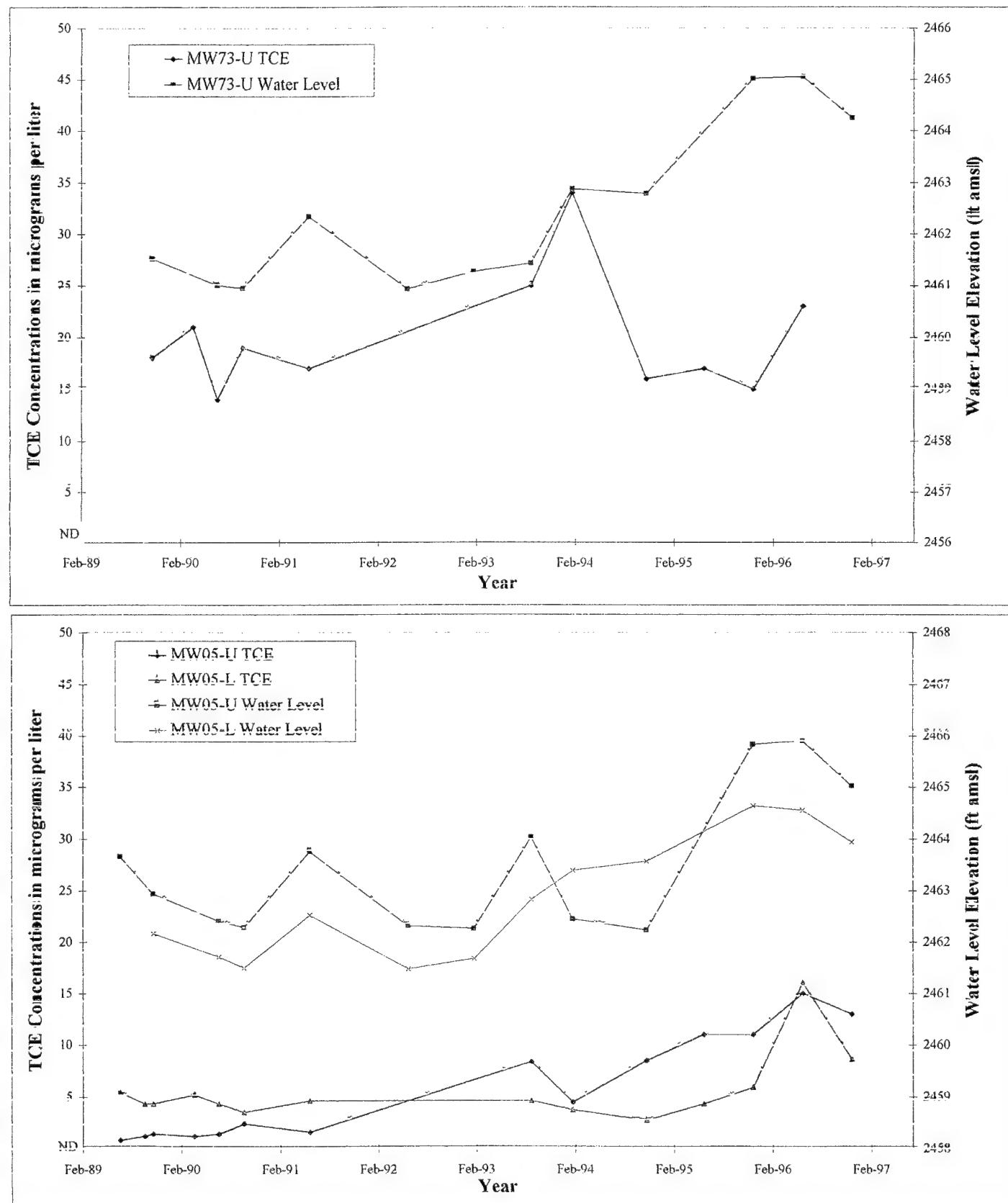


Figure 3-5
TCE Concentrations and Water Level Hydrographs for Selected Monitor Wells
Tucson Arizona Air National Guard Base

ND = Not Detected

Laboratory support documentation were reviewed as part of the data validation activities. Support documentation were reviewed for analysis of ground water samples collected from monitoring wells MW03-L, MW03-U, MW71-U, MW71-L, MW04-U, MW42-L, and MW92-L, and the associated trip blank and duplicate sample. All laboratory results were either accepted (unqualified) or qualified. No data reviewed were rejected. Data qualifiers and the data validation report are provided in Appendix B.

3.3 February/March Semi-Annual Ground Water Monitoring

The next semi-annual monitoring round is scheduled for late February 1997 and will continue until early March 1997.

SECTION 4.0

REFERENCES

ERM-West, Inc., (ERM) 1995b, *Final Semi-Annual Ground Water Monitoring Report, 162nd Fighter Group, Arizona Air National Guard, Tucson International Airport, Tucson, Arizona* (September 1995).

ERM, 1996a, *Final Semi-Annual Ground Water Monitoring Report for the December 1995 Round, 162nd Fighter Group, Arizona Air National Guard, Tucson International Airport, Tucson, Arizona* (May 1996).

ERM, 1996b, *Final Workplan for Ground Water Monitoring, 162nd Fighter Group, Arizona Air National Guard, Tucson International Airport, Tucson, Arizona* (August 1996).

ERM, 1996c, *Final Semi-Annual Ground Water Monitoring Report for the June 1996 Round, 162nd Fighter Group, Arizona Air National Guard, Tucson International Airport, Tucson, Arizona* (October 1996).

Oak Ridge National Laboratory/Environmental Technology Section, (ORNL/ETS) 1995a, *Technical Memorandum, October 1994, Ground Water Sampling Results, Tucson ANG* (February 1995).

ORNL/ETS, 1995b, *Final Installation Remedial Investigation Report, 162nd Fighter Group, Arizona Air National Guard, Tucson, Arizona* (June 1995).

FINAL

APPENDIX A

***ANALYTICAL REPORTS AND
CHAIN-OF-CUSTODY RECORDS***

Quanterra Incorporated
1721 South Grand Avenue
Santa Ana, California 92705

714 258-8610 Telephone
714 258-0921 Fax



January 16, 1997

ERM-WEST, INC.
5111 N SCOTTSDALE ROAD, SUITE 108
SCOTTSDALE, AZ 85250
ATTN: MS. ROBIN WEESNER

LIMS NO.: 123095-0001/0007
DATE SAMPLED: 20-NOV-1996
DATE SAMPLE REC'D: 21-NOV-1996
PROJECT: 6018.21 / TUCSON ANG

Enclosed with this letter is the report containing the analytical results for the project specified above.

The Narrative section included in the following attachment provides a detailed description of all events that occurred during sample processing, analysis, and data review as applicable to the samples and analytical methods requested.

Report data sheets contain a list of the requested constituents measured in each test, the analytical results, and the standard reporting limits (RLs). Reporting limits are adjusted to reflect any dilution or dry weight correction, when applicable.

Preliminary data were provided on December 20, 1996 at 13:30 to Robin Weesner.

The report shall not be reproduced except in full, without the written approval of the laboratory.

If you have any questions regarding the data provided in this report, please call Keith Aleckson at (714) 258-8610. Release of this report has been authorized by the Lab Director or the designee as demonstrated by the following signature.

Sincerely,

A handwritten signature in black ink, appearing to read "Keith A. Aleckson".

Keith A. Aleckson
Project Manager

cc: Project File

TABLE OF CONTENTS

LIMS # 123095

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Chain-of-Custody Records and Sample Description Information	
Analytical Results Summary (LIMS Report)	
A. LIMS Datasheets	
B. QC Summaries	

CASE NARRATIVE

LIMS # 123095

I. CONDITION UPON RECEIPT

Cooler was received intact. The temperature of the cooler was 2.4°C.

Sample containers were received intact. The VOA vials did not contain headspace. Sample container labels did agree with the COC as to sample ID, collection date/time, requested tests and preservatives.

II. ORGANIC ANALYSES (BY METHOD: SW8010)

Per agreement with ERM-West, the samples were subcontracted to Del Mar Laboratories for analysis.

HOLDING TIME

All analyses were performed within method- and project-specific holding times.

METHOD BLANK

All method blanks met method- and/or project-specific QC criteria.

MS/MSD/LCS/DCS AND RPDs

All spike recovery and RPD data met method- and/or project-specific QC criteria.

SURROGATE RECOVERIES

All surrogate spike recoveries in samples and in QC samples met method- and/or project-specific QC criteria.

CALIBRATIONS

All calibrations and calibration verifications met method- and/or project-specific QC criteria.

SAMPLE DESCRIPTION INFORMATION
for
ERM-West, Inc.

Lab ID	Client ID	Matrix	Sampled Date	Received Date
123095-0001-SA	MW72-U-96-2	AQUEOUS	20 NOV 96	11:25 21 NOV 96
123095-0002-SA	KESTLER-1-96-2	AQUEOUS	20 NOV 96	11:50 21 NOV 96
123095-0003-SA	KESTLER-2-96-2	AQUEOUS	20 NOV 96	12:00 21 NOV 96
123095-0004-SA	MW72-L-96-2	AQUEOUS	20 NOV 96	13:55 21 NOV 96
123095-0005-SA	MW94-U-96-2	AQUEOUS	20 NOV 96	15:25 21 NOV 96
123095-0006-SA	MW94-L-96-2	AQUEOUS	20 NOV 96	16:25 21 NOV 96
123095-0007-SA	TB112096-1	WATER-QA	20 NOV 96	21 NOV 96



Quanterra Inc.
1721 So. Grand Ave.
Santa Ana, CA 92705
Attention: Keith Aleckson

Client Project ID: 123095
ERM-West-Tucson/AANG
Sample Descript: Water, MW72-U-96-2
Lab Number: FK03996

2852 Alton Ave., Irvine, CA 92714 (714) 261-1022 FAX (714) 261-1222
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
16525 Sherman Way, Suite C-11, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
2465 W. 12th St., Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1515

Sampled: Nov 20, 1996
Received: Nov 21, 1996
Extracted: Dec 2, 1996
Analyzed: Dec 2, 1996
Reported: Dec 3, 1996

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit µg/L (ppb)	Sample Result	
			µg/L (ppb)
Bromodichloromethane.....	1.0	.....	N.D.
Bromoform.....	1.0	.....	N.D.
Bromomethane.....	1.0	.....	N.D.
Carbon tetrachloride.....	1.0	.....	N.D.
Chlorobenzene.....	1.0	.....	N.D.
Chloroethane.....	1.0	.....	N.D.
2-Chloroethylvinyl ether.....	1.0	.....	N.D.
Chloroform.....	1.0	.....	N.D.
Chloromethane.....	1.0	.....	N.D.
Dibromochloromethane.....	1.0	.....	N.D.
1,2-Dichlorobenzene.....	1.0	.....	N.D.
1,3-Dichlorobenzene.....	1.0	.....	N.D.
1,4-Dichlorobenzene.....	1.0	.....	N.D.
1,1-Dichloroethane.....	1.0	.....	N.D.
1,2-Dichloroethane.....	1.0	.....	N.D.
1,1-Dichloroethene.....	1.0	.....	N.D.
cis-1,2-Dichloroethene.....	1.0	.....	N.D.
trans-1,2-Dichloroethene.....	1.0	.....	N.D.
1,2-Dichloropropane.....	1.0	.....	N.D.
cis-1,3-Dichloropropene.....	1.0	.....	N.D.
trans-1,3-Dichloropropene.....	1.0	.....	N.D.
Methylene chloride.....	1.0	.....	N.D.
1,1,2,2-Tetrachloroethane.....	1.0	.....	N.D.
Tetrachloroethene.....	1.0	.....	4.1
1,1,1-Trichloroethane.....	1.0	.....	N.D.
1,1,2-Trichloroethane.....	1.0	.....	N.D.
Trichloroethene.....	1.0	.....	3.6
Trichlorofluoromethane.....	1.0	.....	N.D.
Vinyl chloride.....	1.0	.....	N.D.
Dichlorodifluoromethane.....	5.0	.....	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)

Nick Haring
Project Manager

Surrogate Standard Recovery:
1-Chloro-3-fluorobenzene..... 109%

Results pertain only to samples tested in the laboratory. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical.

FK03996.QUN <1 of 9>



Del Mar Analytical

Quanterra Inc.
1721 So. Grand Ave.
Santa Ana, CA 92705
Attention: Keith Aleckson

Client Project ID: 123095
ERM-West-Tucson/AANG
Sample Descript: Water, Kestler-1-96-2
Lab Number: FK03997

2852 Alton Ave., Irvine, CA 92714 (714) 261-1022 FAX (714) 261-1228
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
16525 Sherman Way, Suite C-11, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
2465 W. 12th St., Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1338

Sampled: Nov 20, 1996
Received: Nov 21, 1996
Extracted: Dec 2, 1996
Analyzed: Dec 2, 1996
Reported: Dec 3, 1996

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit µg/L (ppb)	Sample Result	
		µg/L (ppb)	µg/L (ppb)
Bromodichloromethane.....	1.0	.....	N.D.
Bromoform.....	1.0	.....	N.D.
Bromomethane.....	1.0	.....	N.D.
Carbon tetrachloride.....	1.0	.....	N.D.
Chlorobenzene.....	1.0	.....	N.D.
Chloroethane.....	1.0	.....	N.D.
2-Chloroethylvinyl ether.....	1.0	.....	N.D.
Chloroform.....	1.0	.....	N.D.
Chloromethane.....	1.0	.....	N.D.
Dibromochloromethane.....	1.0	.....	N.D.
1,2-Dichlorobenzene.....	1.0	.....	N.D.
1,3-Dichlorobenzene.....	1.0	.....	N.D.
1,4-Dichlorobenzene.....	1.0	.....	N.D.
1,1-Dichloroethane.....	1.0	.....	N.D.
1,2-Dichloroethane.....	1.0	.....	N.D.
1,1-Dichloroethene.....	1.0	.....	N.D.
cis-1,2-Dichloroethene.....	1.0	.....	N.D.
trans-1,2-Dichloroethene.....	1.0	.....	N.D.
1,2-Dichloropropane.....	1.0	.....	N.D.
cis-1,3-Dichloropropene.....	1.0	.....	N.D.
trans-1,3-Dichloropropene.....	1.0	.....	N.D.
Methylene chloride.....	1.0	.....	N.D.
1,1,2,2-Tetrachloroethane.....	1.0	.....	N.D.
Tetrachloroethene.....	1.0	.....	N.D.
1,1,1-Trichloroethane.....	1.0	.....	N.D.
1,1,2-Trichloroethane.....	1.0	.....	N.D.
Trichloroethene.....	1.0	.....	N.D.
Trichlorofluoromethane.....	1.0	.....	N.D.
Vinyl chloride.....	1.0	.....	N.D.
Dichlorodifluoromethane.....	5.0	.....	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)


Nick Haring
Project Manager

Surrogate Standard Recovery:
1-Chloro-3-fluorobenzene..... 104%

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FK03996.QUN <2 of 9>



Quanterra Inc.
1721 So. Grand Ave.
Santa Ana, CA 92705
Attention: Keith Aleckson

Client Project ID: 123095
ERM-West-Tucson/AANG
Sample Descript: Water, Kestler-2-96-2
Lab Number: FK03998

2852 Alton Ave., Irvine, CA 92714 (714) 261-1022 FAX (714) 261-12
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
16525 Sherman Way, Suite C-11, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
2465 W. 12th St., Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-13

Sampled: Nov 20, 1996
Received: Nov 21, 1996
Extracted: Dec 3, 1996
Analyzed: Dec 3, 1996
Reported: Dec 3, 1996

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit µg/L (ppb)	Sample Result µg/L (ppb)
Bromodichloromethane.....	1.0	.....
Bromoform.....	1.0	.....
Bromomethane.....	1.0	.....
Carbon tetrachloride.....	1.0	.....
Chlorobenzene.....	1.0	.....
Chloroethane.....	1.0	.....
2-Chloroethylvinyl ether.....	1.0	.....
Chloroform.....	1.0	.....
Chloromethane.....	1.0	.....
Dibromochloromethane.....	1.0	.....
1,2-Dichlorobenzene.....	1.0	.....
1,3-Dichlorobenzene.....	1.0	.....
1,4-Dichlorobenzene.....	1.0	.....
1,1-Dichloroethane.....	1.0	.....
1,2-Dichloroethane.....	1.0	.....
1,1-Dichloroethene.....	1.0	.....
cis-1,2-Dichloroethene.....	1.0	.....
trans-1,2-Dichloroethene.....	1.0	.....
1,2-Dichloropropane.....	1.0	.....
cis-1,3-Dichloropropene.....	1.0	.....
trans-1,3-Dichloropropene.....	1.0	.....
Methylene chloride.....	1.0	.....
1,1,2,2-Tetrachloroethane.....	1.0	.....
Tetrachloroethene.....	1.0	.....
1,1,1-Trichloroethane.....	1.0	.....
1,1,2-Trichloroethane.....	1.0	.....
Trichloroethene.....	1.0	.....
Trichlorofluoromethane.....	1.0	.....
Vinyl chloride.....	1.0	.....
Dichlorodifluoromethane.....	5.0	.....

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)

Nick Haring
Project Manager

Surrogate Standard Recovery:

1-Chloro-3-fluorobenzene.....	104%
-------------------------------	------

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FK03996.QUN <3 of 9>



Del Mar Analytical

Quanterra Inc.
1721 So. Grand Ave.
Santa Ana, CA 92705
Attention: Keith Aleckson

Client Project ID: 123095
ERM-West-Tucson/AANG
Sample Descript: Water, MW72-L-96-2
Lab Number: FK03999

2852 Alton Ave., Irvine, CA 92714 (714) 261-1022 FAX (714) 261-1228
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
16525 Sherman Way, Suite C-11, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
2465 W. 12th St., Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1338

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit µg/L (ppb)	Sample Result	
		µg/L (ppb)	µg/L (ppb)
Bromodichloromethane.....	1.0	.....	N.D.
Bromoform.....	1.0	.....	N.D.
Bromomethane.....	1.0	.....	N.D.
Carbon tetrachloride.....	1.0	.....	N.D.
Chlorobenzene.....	1.0	.....	N.D.
Chloroethane.....	1.0	.....	N.D.
2-Chloroethylvinyl ether.....	1.0	.....	N.D.
Chloroform.....	1.0	.....	N.D.
Chloromethane.....	1.0	.....	N.D.
Dibromochloromethane.....	1.0	.....	N.D.
1,2-Dichlorobenzene.....	1.0	.....	N.D.
1,3-Dichlorobenzene.....	1.0	.....	N.D.
1,4-Dichlorobenzene.....	1.0	.....	N.D.
1,1-Dichloroethane.....	1.0	.....	N.D.
1,2-Dichloroethane.....	1.0	.....	N.D.
1,1-Dichloroethene.....	1.0	.....	N.D.
cis-1,2-Dichloroethene.....	1.0	.....	N.D.
trans-1,2-Dichloroethene.....	1.0	.....	N.D.
1,2-Dichloropropane.....	1.0	.....	N.D.
cis-1,3-Dichloropropene.....	1.0	.....	N.D.
trans-1,3-Dichloropropene.....	1.0	.....	N.D.
Methylene chloride.....	1.0	.....	N.D.
1,1,2,2-Tetrachloroethane.....	1.0	.....	N.D.
Tetrachloroethene.....	1.0	.....	N.D.
1,1,1-Trichloroethane.....	1.0	.....	N.D.
1,1,2-Trichloroethane.....	1.0	.....	N.D.
Trichloroethene.....	1.0	.....	3.0
Trichlorofluoromethane.....	1.0	.....	N.D.
Vinyl chloride.....	1.0	.....	N.D.
Dichlorodifluoromethane.....	5.0	.....	N.D.

Analyses reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)


Nick Haring
Project Manager

Surrogate Standard Recovery:
1-Chloro-3-fluorobenzene..... 100%

Results pertain only to samples tested in the laboratory. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical.

FK03996.QUN <4 of 9>



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16525 Sherman Way, Suite C-11, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
2465 W. 12th St., Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-13

Quanterra Inc.
1721 So. Grand Ave.
Santa Ana, CA 92705
Attention: Keith Aleckson

Client Project ID: 123095
ERM-West-Tucson/AANG
Sample Descript: Water, MW94-U-96-2
Lab Number: FK04000

Sampled: Nov 20, 1996
Received: Nov 21, 1996
Extracted: Dec 2, 1996
Analyzed: Dec 2, 1996
Reported: Dec 3, 1996

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit µg/L (ppb)	Sample Result µg/L (ppb)
Bromodichloromethane.....	1.0	.....
Bromoform.....	1.0	.....
Bromomethane.....	1.0	.....
Carbon tetrachloride.....	1.0	.....
Chlorobenzene.....	1.0	.....
Chloroethane.....	1.0	.....
2-Chloroethylvinyl ether.....	1.0	.....
Chloroform.....	1.0	.....
Chloromethane.....	1.0	.....
Dibromochloromethane.....	1.0	.....
1,2-Dichlorobenzene.....	1.0	.....
1,3-Dichlorobenzene.....	1.0	.....
1,4-Dichlorobenzene.....	1.0	.....
1,1-Dichloroethane.....	1.0	.....
1,2-Dichloroethane.....	1.0	.....
1,1-Dichloroethene.....	1.0	.....
cis-1,2-Dichloroethene.....	1.0	.....
trans-1,2-Dichloroethene.....	1.0	.....
1,2-Dichloropropane.....	1.0	.....
cis-1,3-Dichloropropene.....	1.0	.....
trans-1,3-Dichloropropene.....	1.0	.....
Methylene chloride.....	1.0	.....
1,1,2,2-Tetrachloroethane.....	1.0	.....
Tetrachloroethene.....	1.0	2.1
1,1,1-Trichloroethane.....	1.0	.....
1,1,2-Trichloroethane.....	1.0	.....
Trichloroethene.....	1.0	.....
Trichlorofluoromethane.....	1.0	.....
Vinyl chloride.....	1.0	.....
Dichlorodifluoromethane.....	5.0	.....

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)

Nick Haring
Project Manager

Surrogate Standard Recovery:

1-Chloro-3-fluorobenzene..... 100%

Results pertain only to samples tested in the laboratory. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical.

FK03996.QUN <5 of 9>



Del Mar Analytical

Quanterra Inc.
1721 So. Grand Ave.
Santa Ana, CA 92705
Attention: Keith Aleckson

Client Project ID: 123095
ERM-West-Tucson/AANG
Sample Descript: Water, MW94-L-96-2
Lab Number: FK04001

2852 Alton Ave., Irvine, CA 92714 (714) 261-1022 FAX (714) 261-1228
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
16525 Sherman Way, Suite C-11, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
2465 W. 12th St., Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1338

Sampled: Nov 20, 1996
Received: Nov 21, 1996
Extracted: Dec 2, 1996
Analyzed: Dec 2, 1996
Reported: Dec 3, 1996

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit µg/L (ppb)	Sample Result	
			µg/L (ppb)
Bromodichloromethane.....	1.0	.....	N.D.
Bromoform.....	1.0	.....	N.D.
Bromomethane.....	1.0	.....	N.D.
Carbon tetrachloride.....	1.0	.....	N.D.
Chlorobenzene.....	1.0	.....	N.D.
Chloroethane.....	1.0	.....	N.D.
2-Chloroethylvinyl ether.....	1.0	.....	N.D.
Chloroform.....	1.0	.....	N.D.
Chloromethane.....	1.0	.....	N.D.
Dibromochloromethane.....	1.0	.....	N.D.
1,2-Dichlorobenzene.....	1.0	.....	N.D.
1,3-Dichlorobenzene.....	1.0	.....	N.D.
1,4-Dichlorobenzene.....	1.0	.....	N.D.
1,1-Dichloroethane.....	1.0	.....	N.D.
1,2-Dichloroethane.....	1.0	.....	N.D.
1,1-Dichloroethene.....	1.0	.....	N.D.
cis-1,2-Dichloroethene.....	1.0	.....	N.D.
trans-1,2-Dichloroethene.....	1.0	.....	N.D.
1,2-Dichloropropane.....	1.0	.....	N.D.
cis-1,3-Dichloropropene.....	1.0	.....	N.D.
trans-1,3-Dichloropropene.....	1.0	.....	N.D.
Methylene chloride.....	1.0	.....	N.D.
1,1,2,2-Tetrachloroethane.....	1.0	.....	N.D.
Tetrachloroethene.....	1.0	.....	N.D.
1,1,1-Trichloroethane.....	1.0	.....	N.D.
1,1,2-Trichloroethane.....	1.0	.....	N.D.
Trichloroethene.....	1.0	.....	N.D.
Trichlorofluoromethane.....	1.0	.....	N.D.
Vinyl chloride.....	1.0	.....	N.D.
Dichlorodifluoromethane.....	5.0	.....	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)


Nick Haring
Project Manager

Surrogate Standard Recovery:
1-Chloro-3-fluorobenzene..... 100%

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FK03996.QUN <6 of 9>



Quanterra Inc.
1721 So. Grand Ave.
Santa Ana, CA 92705
Attention: Keith Aleckson

Client Project ID: 123095
ERM-West-Tucson/AANG
Sample Descript: Water, TB112096-1
Lab Number: FK04002

2852 Alton Ave., Irvine, CA 92714 (714) 261-1022 FAX (714) 261-12
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
16525 Sherman Way, Suite C-11, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
2465 W. 12th St., Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-13

Sampled: Nov 20, 1996
Received: Nov 21, 1996
Extracted: Dec 2, 1996
Analyzed: Dec 2, 1996
Reported: Dec 3, 1996

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit µg/L (ppb)	Sample Result	
		µg/L (ppb)	
Bromodichloromethane.....	1.0	.....	N.D.
Bromoform.....	1.0	.....	N.D.
Bromomethane.....	1.0	.....	N.D.
Carbon tetrachloride.....	1.0	.....	N.D.
Chlorobenzene.....	1.0	.....	N.D.
Chloroethane.....	1.0	.....	N.D.
2-Chloroethylvinyl ether.....	1.0	.....	N.D.
Chloroform.....	1.0	.....	N.D.
Chloromethane.....	1.0	.....	N.D.
Dibromochloromethane.....	1.0	.....	N.D.
1,2-Dichlorobenzene.....	1.0	.....	N.D.
1,3-Dichlorobenzene.....	1.0	.....	N.D.
1,4-Dichlorobenzene.....	1.0	.....	N.D.
1,1-Dichloroethane.....	1.0	.....	N.D.
1,2-Dichloroethane.....	1.0	.....	N.D.
1,1-Dichloroethene.....	1.0	.....	N.D.
cis-1,2-Dichloroethene.....	1.0	.....	N.D.
trans-1,2-Dichloroethene.....	1.0	.....	N.D.
1,2-Dichloropropane.....	1.0	.....	N.D.
cis-1,3-Dichloropropene.....	1.0	.....	N.D.
trans-1,3-Dichloropropene.....	1.0	.....	N.D.
Methylene chloride.....	1.0	.....	N.D.
1,1,2,2-Tetrachloroethane.....	1.0	.....	N.D.
Tetrachloroethene.....	1.0	.....	N.D.
1,1,1-Trichloroethane.....	1.0	.....	N.D.
1,1,2-Trichloroethane.....	1.0	.....	N.D.
Trichloroethene.....	1.0	.....	N.D.
Trichlorofluoromethane.....	1.0	.....	N.D.
Vinyl chloride.....	1.0	.....	N.D.
Dichlorodifluoromethane.....	5.0	.....	N.D.

Analytics reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)


Nick Haring
Project Manager

Surrogate Standard Recovery:
1-Chloro-3-fluorobenzene..... 95%

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FK03996.QUN <7 of 9>



Quanterra Inc.
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Santa Ana, CA 92705
Attention: Keith Aleckson

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1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
16525 Sherman Way, Suite C-11, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
2465 W. 12th St., Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1338

Method Blank

Extracted: Dec 2, 1996
Analyzed: Dec 2, 1996
Reported: Dec 3, 1996
Matrix: Water

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit µg/L (ppb)	Sample Result µg/L (ppb)
Bromodichloromethane.....	1.0	N.D.
Bromoform.....	1.0	N.D.
Bromomethane.....	1.0	N.D.
Carbon tetrachloride.....	1.0	N.D.
Chlorobenzene.....	1.0	N.D.
Chloroethane.....	1.0	N.D.
2-Chloroethylvinyl ether.....	1.0	N.D.
Chloroform.....	1.0	N.D.
Chloromethane.....	1.0	N.D.
Dibromochloromethane.....	1.0	N.D.
1,2-Dichlorobenzene.....	1.0	N.D.
1,3-Dichlorobenzene.....	1.0	N.D.
1,4-Dichlorobenzene.....	1.0	N.D.
1,1-Dichloroethane.....	1.0	N.D.
1,2-Dichloroethane.....	1.0	N.D.
1,1-Dichloroethene.....	1.0	N.D.
cis-1,2-Dichloroethene.....	1.0	N.D.
trans-1,2-Dichloroethene.....	1.0	N.D.
1,2-Dichloropropane.....	1.0	N.D.
cis-1,3-Dichloropropene.....	1.0	N.D.
trans-1,3-Dichloropropene.....	1.0	N.D.
Methylene chloride.....	1.0	N.D.
1,1,2,2-Tetrachloroethane.....	1.0	N.D.
Tetrachloroethene.....	1.0	N.D.
1,1,1-Trichloroethane.....	1.0	N.D.
1,1,2-Trichloroethane.....	1.0	N.D.
Trichloroethene.....	1.0	N.D.
Trichlorofluoromethane.....	1.0	N.D.
Vinyl chloride.....	1.0	N.D.
Dichlorodifluoromethane.....	5.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)


Nick Haring
Project Manager

Surrogate Standard Recovery:
1-Chloro-3-fluorobenzene..... 104%

Results pertain only to samples tested in the laboratory. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical.

FK03996.QUN <8 of 9>



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16525 Sherman Way, Suite C-11, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
2465 W. 12th St. Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1333

Quanterra Inc.
1721 So. Grand Ave.
Santa Ana, CA 92705
Attention: Keith Aleckson

Method Blank

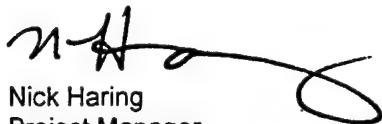
Extracted: Dec 3, 1996
Analyzed: Dec 3, 1996
Reported: Dec 5, 1996
Matrix: Water

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit µg/L (ppb)	Sample Result µg/L (ppb)
Bromodichloromethane.....	1.0	.....
Bromoform.....	1.0	.....
Bromomethane.....	1.0	.....
Carbon tetrachloride.....	1.0	.....
Chlorobenzene.....	1.0	.....
Chloroethane.....	1.0	.....
2-Chloroethylvinyl ether.....	1.0	.....
Chloroform.....	1.0	.....
Chloromethane.....	1.0	.....
Dibromochloromethane.....	1.0	.....
1,2-Dichlorobenzene.....	1.0	.....
1,3-Dichlorobenzene.....	1.0	.....
1,4-Dichlorobenzene.....	1.0	.....
1,1-Dichloroethane.....	1.0	.....
1,2-Dichloroethane.....	1.0	.....
1,1-Dichloroethene.....	1.0	.....
cis-1,2-Dichloroethene.....	1.0	.....
trans-1,2-Dichloroethene.....	1.0	.....
1,2-Dichloropropane.....	1.0	.....
cis-1,3-Dichloropropene.....	1.0	.....
trans-1,3-Dichloropropene.....	1.0	.....
Methylene chloride.....	1.0	.....
1,1,2,2-Tetrachloroethane.....	1.0	.....
Tetrachloroethene.....	1.0	.....
1,1,1-Trichloroethane.....	1.0	.....
1,1,2-Trichloroethane.....	1.0	.....
Trichloroethene.....	1.0	.....
Trichlorofluoromethane.....	1.0	.....
Vinyl chloride.....	1.0	.....
Dichlorodifluoromethane.....	5.0	.....

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)


Nick Haring
Project Manager

Surrogate Standard Recovery:
1-Chloro-3-fluorobenzene..... 105%

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FK03996.QUN <9 of 9>

MS/MSD DATA REPORT

EPA Method 601/602

Matrix: Water

Date: 12/02/96
Sample #: FK03821
Batch #: FL02111W

<u>Analyte</u>	<u>R1</u>	<u>Sp</u>	<u>MS</u>	<u>MSD</u>	<u>PR1</u>	<u>PR2</u>	<u>RPD</u>	<u>Mean PR</u>	<u>Acceptance Limits</u>	
	ppb	ppb	ppb	ppb	%	%	%	%	<u>RPD</u>	<u>Mean PR</u>
Benzene	0	10	9.9	10	99	100	0.16	100	≤10	70 - 130
Chloroform	0.44	10	12	12	115	112	3.2	113	≤25	70 - 130
1,1-Dichloroethane	0	10	11	11	108	108	0.83	108	≤10	70 - 130
1,2-Dichloroethane	0	10	11	12	106	116	8.6	111	≤10	70 - 130
1,1-Dichloroethene	0.087	10	11	11	111	111	0.045	111	≤11	70 - 130
Tetrachloroethene	0.098	10	12	11	117	111	5.5	114	≤10	70 - 130
Toluene	0	10	9.9	10	99	100	1.2	99	≤19	70 - 130
Trichloroethene	0.059	10	12	11	116	110	5.2	113	≤11	70 - 130

Definition of Terms

- R1..... Result of Sample Analysis
- Sp..... Spike Concentration added to sample
- MS..... Matrix Spike Result
- MSD..... Matrix Spike Duplicate Result
- PR1..... Percent Recovery of MS; $((MS-R1)/SP) \times 100$
- PR2..... Percent Recovery of MSD; $((MSD-R1)/SP) \times 100$
- RPD..... Relative Percent Difference; $((MS-MSD)/(MS+MSD)/2) \times 100$
- Mean PR..... Mean Percent Recovery
- Acceptance Limits Determined by in-house Control Charts



Del Mar Analytical

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LCS DATA REPORT

EPA Method 601/602

Matrix: Water

Date: 12/02/96

Batch #: FL02111W

<u>Analyte</u>	<u>Spike Conc.</u>	<u>Result</u>	<u>% Recovery</u>	<u>ACP</u>
Benzene	10	9.9	99	80 - 120 %
Chloroform	10	11	113	80 - 120 %
1,1-Dichloroethane	10	10	105	80 - 120 %
1,2-Dichloroethane	10	12	115	80 - 120 %
1,1-Dichloroethene	10	10	100	80 - 120 %
Tetrachloroethene	10	9.8	98	80 - 120 %
Toluene	10	9.7	97	80 - 120 %
Trichloroethene	10	10	102	80 - 120 %

Definition of Terms

LCS Laboratory Control Sample

Spike Conc Result of Sample Analysis

Result Result of Laboratory Control Sample Analysis

%Recovery Percent Recovery of LCS; ((Result - Spike Conc.) / Spike Conc.) X 100

ACP Acceptance Limits for Percent Recovery

Del Mar Analytical

Quanterra Incorporated
1721 South Grand Avenue
Santa Ana, California 92705

714 258-8610 Telephone
714 258-0921 Fax

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**ERM-WEST INC.
PHOENIX, AZ.**

February 4, 1997

ERM-WEST, INC.
5111 N SCOTTSDALE ROAD, SUITE 108
SCOTTSDALE, AZ 85250
ATTN: MS. ROBIN WEESNER

LIMS NO.: 123137-0001/0009
DATE SAMPLED: 21-NOV-1996
DATE SAMPLE REC'D: 22-NOV-1996
PROJECT: 6018.21 / TUCSON ANG

Enclosed with this letter is an AMENDED report containing the analytical results for the project specified above.

The Narrative section included in the following attachment provides a detailed description of all events that occurred during sample processing, analysis, and data review as applicable to the samples and analytical methods requested.

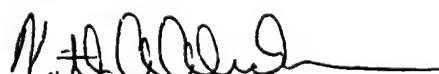
Report data sheets contain a list of the requested constituents measured in each test, the analytical results, and the standard reporting limits (RLs). Reporting limits are adjusted to reflect any dilution or dry weight correction, when applicable. Also provided in this report are the LIMS Report Key and the terms and abbreviations commonly used in our reports.

Preliminary data were provided on December 20, 1996 at 13:35 to Robin Weesner.

The report shall not be reproduced except in full, without the written approval of the laboratory.

If you have any questions regarding the data provided in this report, please call Keith Aleckson at (714) 258-8610. Release of this report has been authorized by the Lab Director or the designee as demonstrated by the following signature.

Sincerely,



Keith A. Aleckson
Project Manager

cc: Project File

LIMS REPORT KEY

Environmental
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Section	Description
Cover letter	Signature page, report narrative as applicable.
Sample Description Information	Tabulated cross-reference between the Lab ID and Client ID, including matrix, date and time sampled and the date received for all samples in the project.
Sample Analysis Results Sheets	Lists sample results, test components, reporting limits, dates prepared and analyzed and any data qualifiers. Pages are organized by test.
QC Lot Assignment Report	Cross-reference between lab IDs and applicable QC batches (DCS, LCS, SCS, Blank, MS/SD, DU)
Duplicate Control Sample Report	Percent recovery and RPD results, with acceptance limits, for the laboratory Duplicate Control Samples for each test are tabulated in this report. These are measures of accuracy and precision for each test.
Laboratory Control Sample Report	Percent recovery results for a single Laboratory Control Sample (if applicable) are tabulated in this report, with the applicable acceptance limits for each test.
Matrix Spike/Matrix Spike Duplicate Report	Percent recovery and RPD results for matrix-specific QC samples and acceptance limits, where applicable. This report can be used to assess matrix effects on an analysis.
Single Control Sample Report	A tabulation of the surrogate recoveries for the blank for organic analyses.
Method Blank Report	A summary of the results of the analysis of the method blank for each test.

List of Abbreviations and Terms

DCS	Duplicate Control Sample	MSD	Matrix Spike Duplicate
DU	Sample Duplicate	QC Run	Preparation batch
EB	Equipment Blank	QC Category	LIMS QC Category
FB	Field Blank	QC Lot	DCS batch
FD	Field Duplicate	ND	Not Detected at the reporting limit expressed
IDL	Instrument Detection Limit	QC Matrix	Matrix of the laboratory control sample (s)
LCS	Laboratory Control Sample	RL	Reporting Limit
MB	Method Blank	QC	Quality Control
MDL	Method Detection Limit	SA	Sample
MS	Matrix Spike	SD	See MSD
RPD	Relative Percent Difference	TB	Trip Blank
ppm (parts-per-million)	mg/L or mg/kg	ppb (parts-per-billion)	µg/L or µg/kg
QUAL	Qualifier flag	DIL	Dilution Factor

Refer to the Quanterra Incorporated Quality Assurance Management Plan for detailed explanations of terms summarized above.

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CASE NARRATIVE

LIMS # 123137

AMENDMENT

Amendment 1: The report is amended to provide an initial calibration summary, the initial calibration data, and the mid-point calibration check for this project. The summary was requested in a conversation with ERM-West on February 3, 1997. The initial calibration and mid-point data were inadvertently omitted from the original submission of the report. The omission was identified by ERM-West on January 30, 1997.

I. CONDITION UPON RECEIPT

Cooler was received intact. The temperature of the cooler was 2.4°C. The temperature blank was measured at 2.5°C.

Sample containers were received intact. The VOA vials did not contain headspace. Sample container labels did agree with the COC as to sample ID, collection date/time, requested tests and preservatives.

II. ORGANIC ANALYSES (BY METHOD: SW8010)

Per agreement with ERM-West, the samples were subcontracted to Del Mar Laboratories for analysis. Supporting data are provided to meet the 10% full documentation requirement.

HOLDING TIME

All analyses were performed within method- and/or project specific criteria.

METHOD BLANK

All method blanks met method- and/or project-specific QC criteria.

MS/MSD/LCS/DCS AND RPDs

All spike recovery and RPD data met method- and/or project-specific QC criteria.

SURROGATE RECOVERIES

All surrogate spike recoveries in samples and in QC samples met method- and/or project-specific QC criteria.

CALIBRATIONS

All calibrations and calibration verifications met method- and/or project-specific QC criteria.



Environmental
Services

SAMPLE DESCRIPTION INFORMATION
for
ERM-West, Inc.

Lab ID	Client ID	Matrix	Sampled Date	Received Time	Received Date
123137-0001-SA	TB112196-1	AQUEOUS	21 NOV 96		22 NOV 96
123137-0002-SA	MW03-L-96-2	AQUEOUS	21 NOV 96	08:55	22 NOV 96
123137-0003-SA	MW03-U-96-2	AQUEOUS	21 NOV 96	09:30	22 NOV 96
123137-0004-SA	MW71-U-96-2	AQUEOUS	21 NOV 96	11:40	22 NOV 96
123137-0005-SA	MW71-L-96-2	AQUEOUS	21 NOV 96	12:22	22 NOV 96
123137-0006-SA	MW04-U-96-2	AQUEOUS	21 NOV 96	14:22	22 NOV 96
123137-0007-SA	MW42-L-96-2	AQUEOUS	21 NOV 96	15:50	22 NOV 96
123137-0008-SA	MW92-U-96-2	AQUEOUS	21 NOV 96	17:10	22 NOV 96
123137-0009-SA	MW71-L-96-2*	AQUEOUS	21 NOV 96	12:22	22 NOV 96



Del Mar Analytical

Quanterra Inc.
1721 So. Grand Ave.
Santa Ana, CA 92705
Attention: Keith Aleckson

Client Project ID: 123137
ERM-West
Sample Descript: Water, TB112196-1 (-001)
Lab Number: FK04036

2852 Alton Ave., Irvine, CA 92714 (714) 261-1022 FAX (714) 261-1228
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
16525 Sherman Way, Suite C-11, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
2465 W. 12th St., Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1338

Sampled: Nov 21, 1996
Received: Nov 22, 1996
Extracted: Dec 3, 1996
Analyzed: Dec 3, 1996
Reported: Dec 4, 1996

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit µg/L (ppb)	Sample Result	
			µg/L (ppb)
Bromodichloromethane.....	1.0	.....	N.D.
Bromoform.....	1.0	.....	N.D.
Bromomethane.....	1.0	.....	N.D.
Carbon tetrachloride.....	1.0	.....	N.D.
Chlorobenzene.....	1.0	.....	N.D.
Chloroethane.....	1.0	.....	N.D.
2-Chloroethylvinyl ether.....	1.0	.....	N.D.
Chloroform.....	1.0	.....	N.D.
Chloromethane.....	1.0	.....	N.D.
Dibromochloromethane.....	1.0	.....	N.D.
1,2-Dichlorobenzene.....	1.0	.....	N.D.
1,3-Dichlorobenzene.....	1.0	.....	N.D.
1,4-Dichlorobenzene.....	1.0	.....	N.D.
1,1-Dichloroethane.....	1.0	.....	N.D.
1,2-Dichloroethane.....	1.0	.....	N.D.
1,1-Dichloroethene.....	1.0	.....	N.D.
cis-1,2-Dichloroethene.....	1.0	.....	N.D.
trans-1,2-Dichloroethene.....	1.0	.....	N.D.
1,2-Dichloropropane.....	1.0	.....	N.D.
cis-1,3-Dichloropropene.....	1.0	.....	N.D.
trans-1,3-Dichloropropene.....	1.0	.....	N.D.
Methylene chloride.....	1.0	.....	N.D.
1,1,2,2-Tetrachloroethane.....	1.0	.....	N.D.
Tetrachloroethene.....	1.0	.....	N.D.
1,1,1-Trichloroethane.....	1.0	.....	N.D.
1,1,2-Trichloroethane.....	1.0	.....	N.D.
Trichloroethene.....	1.0	.....	N.D.
Trichlorofluoromethane.....	1.0	.....	N.D.
Vinyl chloride.....	1.0	.....	N.D.
Dichlorodifluoromethane.....	5.0	.....	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)


Nick Haring
Project Manager

Surrogate Standard Recovery:
1-Chloro-3-fluorobenzene..... 104%

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FK04036.QUN <1 of 10>



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 16525 Sherman Way, Suite C-11, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
 2465 W. 12th St., Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-13

Quanterra Inc.
 1721 So. Grand Ave.
 Santa Ana, CA 92705
 Attention: Keith Aleckson

Client Project ID: 123137
 ERM-West
 Sample Descript: Water, MW03-L-96-2 (-002)
 Lab Number: FK04037

Sampled: Nov 21, 1996
 Received: Nov 22, 1996
 Extracted: Dec 3, 1996
 Analyzed: Dec 3, 1996
 Reported: Dec 4, 1996

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit µg/L (ppb)	Sample Result	
			µg/L (ppb)
Bromodichloromethane.....	1.0	.....	N.D.
Bromoform.....	1.0	.....	N.D.
Bromomethane.....	1.0	.....	N.D.
Carbon tetrachloride.....	1.0	.....	N.D.
Chlorobenzene.....	1.0	.....	N.D.
Chloroethane.....	1.0	.....	N.D.
2-Chloroethylvinyl ether.....	1.0	.....	N.D.
Chloroform.....	1.0	.....	N.D.
Chloromethane.....	1.0	.....	N.D.
Dibromochloromethane.....	1.0	.....	N.D.
1,2-Dichlorobenzene.....	1.0	.....	N.D.
1,3-Dichlorobenzene.....	1.0	.....	N.D.
1,4-Dichlorobenzene.....	1.0	.....	N.D.
1,1-Dichloroethane.....	1.0	.....	N.D.
1,2-Dichloroethane.....	1.0	.....	N.D.
1,1-Dichloroethene.....	1.0	.....	N.D.
cis-1,2-Dichloroethene.....	1.0	.....	N.D.
trans-1,2-Dichloroethene.....	1.0	.....	N.D.
1,2-Dichloropropane.....	1.0	.....	N.D.
cis-1,3-Dichloropropene.....	1.0	.....	N.D.
trans-1,3-Dichloropropene.....	1.0	.....	N.D.
Methylene chloride.....	1.0	.....	N.D.
1,1,2,2-Tetrachloroethane.....	1.0	.....	N.D.
Tetrachloroethene.....	1.0	.....	1.8
1,1,1-Trichloroethane.....	1.0	.....	N.D.
1,1,2-Trichloroethane.....	1.0	.....	N.D.
Trichloroethene.....	1.0	.....	N.D.
Trichlorofluoromethane.....	1.0	.....	N.D.
Vinyl chloride.....	1.0	.....	N.D.
Dichlorodifluoromethane.....	5.0	.....	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)

Nick Haring
 Project Manager

Surrogate Standard Recovery:
1-Chloro-3-fluorobenzene..... 104%

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FK04036.QUN <2 of 10>



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 16525 Sherman Way, Suite C-11, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
 2465 W. 12th St., Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1338

Quanterra Inc.
 1721 So. Grand Ave.
 Santa Ana, CA 92705
 Attention: Keith Aleckson

Client Project ID: 123137
 ERM-West
 Sample Descript: Water, MW03-U-96-2 (03)
 Lab Number: FK04038

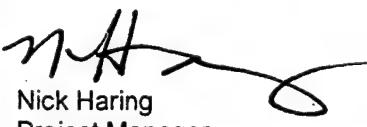
Sampled:	Nov 21, 1996
Received:	Nov 22, 1996
Extracted:	Dec 3, 1996
Analyzed:	Dec 3, 1996
Reported:	Dec 4, 1996

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit µg/L (ppb)	Sample Result µg/L (ppb)
Bromodichloromethane.....	1.0	.....
Bromoform.....	1.0	.....
Bromomethane.....	1.0	.....
Carbon tetrachloride.....	1.0	.....
Chlorobenzene.....	1.0	.....
Chloroethane.....	1.0	.....
2-Chloroethylvinyl ether.....	1.0	.....
Chloroform.....	1.0	.....
Chloromethane.....	1.0	.....
Dibromochloromethane.....	1.0	.....
1,2-Dichlorobenzene.....	1.0	.....
1,3-Dichlorobenzene.....	1.0	.....
1,4-Dichlorobenzene.....	1.0	.....
1,1-Dichloroethane.....	1.0	.....
1,2-Dichloroethane.....	1.0	.....
1,1-Dichloroethene.....	1.0	.....
cis-1,2-Dichloroethene.....	1.0	.....
trans-1,2-Dichloroethene.....	1.0	.....
1,2-Dichloropropane.....	1.0	.....
cis-1,3-Dichloropropene.....	1.0	.....
trans-1,3-Dichloropropene.....	1.0	.....
Methylene chloride.....	1.0	.....
1,1,2,2-Tetrachloroethane.....	1.0	.....
Tetrachloroethene.....	1.0	.....
1,1,1-Trichloroethane.....	1.0	.....
1,1,2-Trichloroethane.....	1.0	.....
Trichloroethene.....	1.0	.....
Trichlorofluoromethane.....	1.0	.....
Vinyl chloride.....	1.0	.....
Dichlorodifluoromethane.....	5.0	.....

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)



Nick Haring
 Project Manager

Surrogate Standard Recovery:

1-Chloro-3-fluorobenzene.....	99%
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16525 Sherman Way, Suite C-11, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
2465 W. 12th St., Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1313

Quanterra Inc.
1721 So. Grand Ave.
Santa Ana, CA 92705
Attention: Keith Aleckson

Client Project ID: 123137
ERM-West
Sample Descript: Water, MW71-U-96-2 (-004)
Lab Number: FK04039

Sampled: Nov 21, 1996
Received: Nov 22, 1996
Extracted: Dec 3, 1996
Analyzed: Dec 3, 1996
Reported: Dec 4, 1996

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit µg/L (ppb)	Sample Result	
			µg/L (ppb)
Bromodichloromethane.....	1.0	.....	N.D.
Bromoform.....	1.0	.....	N.D.
Bromomethane.....	1.0	.....	N.D.
Carbon tetrachloride.....	1.0	.....	N.D.
Chlorobenzene.....	1.0	.....	N.D.
Chloroethane.....	1.0	.....	N.D.
2-Chloroethylvinyl ether.....	1.0	.....	N.D.
Chloroform.....	1.0	.....	N.D.
Chloromethane.....	1.0	.....	N.D.
Dibromochloromethane.....	1.0	.....	N.D.
1,2-Dichlorobenzene.....	1.0	.....	N.D.
1,3-Dichlorobenzene.....	1.0	.....	N.D.
1,4-Dichlorobenzene.....	1.0	.....	N.D.
1,1-Dichloroethane.....	1.0	.....	N.D.
1,2-Dichloroethane.....	1.0	.....	N.D.
1,1-Dichloroethene.....	1.0	.....	N.D.
trans-1,2-Dichloroethene.....	1.0	.....	N.D.
1,2-Dichloropropane.....	1.0	.....	N.D.
cis-1,3-Dichloropropene.....	1.0	.....	N.D.
trans-1,3-Dichloropropene.....	1.0	.....	N.D.
Methylene chloride.....	1.0	.....	N.D.
1,1,2,2-Tetrachloroethane.....	1.0	.....	N.D.
Tetrachloroethene.....	1.0	.....	2.8
1,1,1-Trichloroethane.....	1.0	.....	N.D.
1,1,2-Trichloroethane.....	1.0	.....	N.D.
Trichloroethene.....	1.0	.....	9.3
Trichlorofluoromethane.....	1.0	.....	N.D.
Vinyl chloride.....	1.0	.....	N.D.
Dichlorodifluoromethane.....	5.0	.....	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)

Nick Haring
Project Manager

Surrogate Standard Recovery:

1-Chloro-3-fluorobenzene..... 102%

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FK04036.QUN <4 of 10>



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 2465 W. 12th St., Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1338

Quanterra Inc.
 1721 So. Grand Ave.
 Santa Ana, CA 92705
 Attention: Keith Aleckson

Client Project ID: 123137
 ERM-West
 Sample Descript: Water, MW71-L-96-2 (-05)
 Lab Number: FK04040

Sampled: Nov 21, 1996
 Received: Nov 22, 1996
 Extracted: Dec 3, 1996
 Analyzed: Dec 3, 1996
 Reported: Dec 4, 1996

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit µg/L (ppb)	Sample Result	
		µg/L (ppb)	
Bromodichloromethane.....	1.0	.....	N.D.
Bromoform.....	1.0	.....	N.D.
Bromomethane.....	1.0	.....	N.D.
Carbon tetrachloride.....	1.0	.....	N.D.
Chlorobenzene.....	1.0	.....	N.D.
Chloroethane.....	1.0	.....	N.D.
2-Chloroethylvinyl ether.....	1.0	.....	N.D.
Chloroform.....	1.0	.....	N.D.
Chloromethane.....	1.0	.....	N.D.
Dibromochloromethane.....	1.0	.....	N.D.
1,2-Dichlorobenzene.....	1.0	.....	N.D.
1,3-Dichlorobenzene.....	1.0	.....	N.D.
1,4-Dichlorobenzene.....	1.0	.....	N.D.
1,1-Dichloroethane.....	1.0	.....	N.D.
1,2-Dichloroethane.....	1.0	.....	N.D.
1,1-Dichloroethene.....	1.0	.....	N.D.
cis-1,2-Dichloroethene.....	1.0	.....	N.D.
trans-1,2-Dichloroethene.....	1.0	.....	N.D.
1,2-Dichloropropane.....	1.0	.....	N.D.
cis-1,3-Dichloropropene.....	1.0	.....	N.D.
trans-1,3-Dichloropropene.....	1.0	.....	N.D.
Methylene chloride.....	1.0	.....	N.D.
1,1,2,2-Tetrachloroethane.....	1.0	.....	N.D.
Tetrachloroethene.....	1.0	.....	N.D.
1,1,1-Trichloroethane.....	1.0	.....	N.D.
1,1,2-Trichloroethane.....	1.0	.....	N.D.
Trichloroethene.....	1.0	.....	14
Trichlorofluoromethane.....	1.0	.....	N.D.
Vinyl chloride.....	1.0	.....	N.D.
Dichlorodifluoromethane.....	5.0	.....	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)


 Nick Haring
 Project Manager

Surrogate Standard Recovery:
1-Chloro-3-fluorobenzene..... 98%

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2465 W. 12th St., Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1333

Quanterra Inc.
1721 So. Grand Ave.
Santa Ana, CA 92705
Attention: Keith Aleckson

Client Project ID: 123137
ERM-West
Sample Descript: Water, MW04-U-96-2 (-006)
Lab Number: FK04041

Sampled: Nov 21, 1996
Received: Nov 22, 1996
Extracted: Dec 3, 1996
Analyzed: Dec 3, 1996
Reported: Dec 4, 1996

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit µg/L (ppb)	Sample Result µg/L (ppb)
Bromodichloromethane.....	1.0	.....
Bromoform.....	1.0	.....
Bromomethane.....	1.0	.....
Carbon tetrachloride.....	1.0	.....
Chlorobenzene.....	1.0	.....
Chloroethane.....	1.0	.....
2-Chloroethylvinyl ether.....	1.0	.....
Chloroform.....	1.0	.....
Chloromethane.....	1.0	.....
Dibromochloromethane.....	1.0	.....
1,2-Dichlorobenzene.....	1.0	.....
1,3-Dichlorobenzene.....	1.0	.....
1,4-Dichlorobenzene.....	1.0	.....
1,1-Dichloroethane.....	1.0	.....
1,2-Dichloroethane.....	1.0	.....
1,1-Dichloroethene.....	1.0	.....
cis-1,2-Dichloroethene.....	1.0	.....
trans-1,2-Dichloroethene.....	1.0	.....
1,2-Dichloropropane.....	1.0	.....
cis-1,3-Dichloropropene.....	1.0	.....
trans-1,3-Dichloropropene.....	1.0	.....
Methylene chloride.....	1.0	.....
1,1,2,2-Tetrachloroethane.....	1.0	.....
Tetrachloroethene.....	1.0	2.2
1,1,1-Trichloroethane.....	1.0	.....
1,1,2-Trichloroethane.....	1.0	.....
Trichloroethene.....	1.0	11
Trichlorofluoromethane.....	1.0	.....
Vinyl chloride.....	1.0	.....
Dichlorodifluoromethane.....	5.0	.....

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)

Nick Haring
Project Manager

Surrogate Standard Recovery:

1-Chloro-3-fluorobenzene.....

103%

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FK04036.QUN <6 of 10>



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 2465 W. 12th St., Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1338

Quanterra Inc.
 1721 So. Grand Ave.
 Santa Ana, CA 92705
 Attention: Keith Aleckson

Client Project ID: 123137
 ERM-West
 Sample Descript: Water, MW42-L-96-2 (-007)
 Lab Number: FK04042

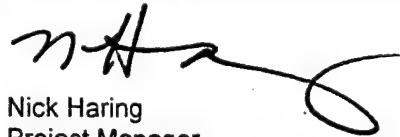
Sampled: Nov 21, 1996
 Received: Nov 22, 1996
 Extracted: Dec 3, 1996
 Analyzed: Dec 3, 1996
 Reported: Dec 4, 1996

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit µg/L (ppb)	Sample Result	
		µg/L (ppb)	µg/L (ppb)
Bromodichloromethane.....	1.0	.....	N.D.
Bromoform.....	1.0	.....	N.D.
Bromomethane.....	1.0	.....	N.D.
Carbon tetrachloride.....	1.0	.....	N.D.
Chlorobenzene.....	1.0	.....	N.D.
Chloroethane.....	1.0	.....	N.D.
2-Chloroethylvinyl ether.....	1.0	.....	N.D.
Chloroform.....	1.0	.....	N.D.
Chloromethane.....	1.0	.....	N.D.
Dibromochloromethane.....	1.0	.....	N.D.
1,2-Dichlorobenzene.....	1.0	.....	N.D.
1,3-Dichlorobenzene.....	1.0	.....	N.D.
1,4-Dichlorobenzene.....	1.0	.....	N.D.
1,1-Dichloroethane.....	1.0	.....	N.D.
1,2-Dichloroethane.....	1.0	.....	N.D.
1,1-Dichloroethene.....	1.0	.....	N.D.
cis-1,2-Dichloroethene.....	1.0	.....	N.D.
trans-1,2-Dichloroethene.....	1.0	.....	N.D.
1,2-Dichloropropane.....	1.0	.....	N.D.
cis-1,3-Dichloropropene.....	1.0	.....	N.D.
trans-1,3-Dichloropropene.....	1.0	.....	N.D.
Methylene chloride.....	1.0	.....	N.D.
1,1,2,2-Tetrachloroethane.....	1.0	.....	N.D.
Tetrachloroethene.....	1.0	.....	N.D.
1,1,1-Trichloroethane.....	1.0	.....	N.D.
1,1,2-Trichloroethane.....	1.0	.....	N.D.
Trichloroethene.....	1.0	.....	16
Trichlorofluoromethane.....	1.0	.....	N.D.
Vinyl chloride.....	1.0	.....	N.D.
Dichlorodifluoromethane.....	5.0	.....	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)


 Nick Haring
 Project Manager

Surrogate Standard Recovery:

1-Chloro-3-fluorobenzene.....	102%
-------------------------------	------

Results pertain only to samples tested in the laboratory. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical.



Quanterra Inc.
1721 So. Grand Ave.
Santa Ana, CA 92705
Attention: Keith Aleckson

Client Project ID: 123137
ERM-West
Sample Descript: Water, MW92-U-96-2 (-008)
Lab Number: FK04043

2852 Alton Ave., Irvine, CA 92714 (714) 261-1022 FAX (714) 261-1222
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
16525 Sherman Way, Suite C-11, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
2465 W. 12th St., Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1322

Sampled: Nov 21, 1996
Received: Nov 22, 1996
Extracted: Dec 3, 1996
Analyzed: Dec 3, 1996
Reported: Dec 4, 1996

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit µg/L (ppb)	Sample Result µg/L (ppb)
Bromodichloromethane.....	1.0	.....
Bromoform.....	1.0	.....
Bromomethane.....	1.0	.....
Carbon tetrachloride.....	1.0	.....
Chlorobenzene.....	1.0	.....
Chloroethane.....	1.0	.....
2-Chloroethylvinyl ether.....	1.0	.....
Chloroform.....	1.0	.....
Chloromethane.....	1.0	.....
Dibromochloromethane.....	1.0	.....
1,2-Dichlorobenzene.....	1.0	.....
1,3-Dichlorobenzene.....	1.0	.....
1,4-Dichlorobenzene.....	1.0	.....
1,1-Dichloroethane.....	1.0	.....
1,2-Dichloroethane.....	1.0	.....
1,1-Dichloroethene.....	1.0	.....
cis-1,2-Dichloroethene.....	1.0	.....
trans-1,2-Dichloroethene.....	1.0	.....
1,2-Dichloropropane.....	1.0	.....
cis-1,3-Dichloropropene.....	1.0	.....
trans-1,3-Dichloropropene.....	1.0	.....
Methylene chloride.....	1.0	.....
1,1,2,2-Tetrachloroethane.....	1.0	.....
Tetrachloroethene.....	1.0	.....
1,1,1-Trichloroethane.....	1.0	.....
1,1,2-Trichloroethane.....	1.0	.....
Trichloroethene.....	1.0	9.8
Trichlorofluoromethane.....	1.0	.....
Vinyl chloride.....	1.0	.....
Dichlorodifluoromethane.....	5.0	.....

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)

Nick Haring
Project Manager

Surrogate Standard Recovery:
1-Chloro-3-fluorobenzene..... 97%

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FK04036.QUN <8 of 10>



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 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
 16525 Sherman Way, Suite C-11, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
 2465 W. 12th St., Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1338

Quanterra Inc.
 1721 So. Grand Ave.
 Santa Ana, CA 92705
 Attention: Keith Aleckson

Client Project ID: 123137
 ERM-West
 Sample Descript: Water, MW71-L-96-2 (-009)
 Lab Number: FK04044

Sampled: Nov 21, 1996
 Received: Nov 22, 1996
 Extracted: Dec 3, 1996
 Analyzed: Dec 3, 1996
 Reported: Dec 4, 1996

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit µg/L (ppb)	Sample Result	
		µg/L (ppb)	
Bromodichloromethane.....	1.0	.....	N.D.
Bromoform.....	1.0	.....	N.D.
Bromomethane.....	1.0	.....	N.D.
Carbon tetrachloride.....	1.0	.....	N.D.
Chlorobenzene.....	1.0	.....	N.D.
Chloroethane.....	1.0	.....	N.D.
2-Chloroethylvinyl ether.....	1.0	.....	N.D.
Chloroform.....	1.0	.....	N.D.
Chloromethane.....	1.0	.....	N.D.
Dibromochloromethane.....	1.0	.....	N.D.
1,2-Dichlorobenzene.....	1.0	.....	N.D.
1,3-Dichlorobenzene.....	1.0	.....	N.D.
1,4-Dichlorobenzene.....	1.0	.....	N.D.
1,1-Dichloroethane.....	1.0	.....	N.D.
1,2-Dichloroethane.....	1.0	.....	N.D.
1,1-Dichloroethene.....	1.0	.....	N.D.
trans-1,2-Dichloroethene.....	1.0	.....	N.D.
1,2-Dichloropropane.....	1.0	.....	N.D.
cis-1,3-Dichloropropene.....	1.0	.....	N.D.
trans-1,3-Dichloropropene.....	1.0	.....	N.D.
Methylene chloride.....	1.0	.....	N.D.
1,1,2,2-Tetrachloroethane.....	1.0	.....	N.D.
Tetrachloroethene.....	1.0	.....	N.D.
1,1,1-Trichloroethane.....	1.0	.....	N.D.
1,1,2-Trichloroethane.....	1.0	.....	N.D.
Trichloroethene.....	1.0	.....	12
Trichlorofluoromethane.....	1.0	.....	N.D.
Vinyl chloride.....	1.0	.....	N.D.
Dichlorodifluoromethane.....	5.0	.....	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)



Nick Haring
 Project Manager

Surrogate Standard Recovery:

1-Chloro-3-fluorobenzene.....

97%

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FK04036.QUN <9 of 10>



Quanterra Inc.
1721 So. Grand Ave.
Santa Ana, CA 92705
Attention: Keith Aleckson

2852 Alton Ave., Irvine, CA 92714 (714) 261-1022 FAX (714) 261-12
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
16525 Sherman Way, Suite C-11, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1847
2465 W. 12th St., Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-13

Method Blank

Extracted: Dec 3, 1996
Analyzed: Dec 3, 1996
Reported: Dec 4, 1996
Matrix: Water

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit µg/L (ppb)	Sample Result µg/L (ppb)
Bromodichloromethane.....	1.0	.....
Bromoform.....	1.0	.....
Bromomethane.....	1.0	.....
Carbon tetrachloride.....	1.0	.....
Chlorobenzene.....	1.0	.....
Chloroethane.....	1.0	.....
2-Chloroethylvinyl ether.....	1.0	.....
Chloroform.....	1.0	.....
Chloromethane.....	1.0	.....
Dibromochloromethane.....	1.0	.....
1,2-Dichlorobenzene.....	1.0	.....
1,3-Dichlorobenzene.....	1.0	.....
1,4-Dichlorobenzene.....	1.0	.....
1,1-Dichloroethane.....	1.0	.....
1,2-Dichloroethane.....	1.0	.....
1,1-Dichloroethene.....	1.0	.....
cis-1,2-Dichloroethene.....	1.0	.....
trans-1,2-Dichloroethene.....	1.0	.....
1,2-Dichloropropane.....	1.0	.....
cis-1,3-Dichloropropene.....	1.0	.....
trans-1,3-Dichloropropene.....	1.0	.....
Methylene chloride.....	1.0	.....
1,1,2,2-Tetrachloroethane.....	1.0	.....
Tetrachloroethene.....	1.0	.....
1,1,1-Trichloroethane.....	1.0	.....
1,1,2-Trichloroethane.....	1.0	.....
Trichloroethene.....	1.0	.....
Trichlorofluoromethane.....	1.0	.....
Vinyl chloride.....	1.0	.....
Dichlorodifluoromethane.....	5.0	.....

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)

Nick Haring
Project Manager

Surrogate Standard Recovery:

1-Chloro-3-fluorobenzene..... 105%

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FK04036.QUN <10 of 10>



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16525 Sherman Way, Suite C-11, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
2465 W. 12th St., Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1338

MS/MSD DATA REPORT

EPA Method 601/602

Matrix: Water

Date: 12/03/96
Sample #: FK04036
Batch #: FL03111W

<u>Analyte</u>	<u>R1</u>	<u>Sp</u>	<u>MS</u>	<u>MSD</u>	<u>PR1</u>	<u>PR2</u>	<u>RPD</u>	<u>Mean PR</u>	<u>Acceptance Limits</u>	
	ppb	ppb	ppb	ppb	%	%	%	%	RPD	Mean PR
Benzene	0	10	9.9	10	99	102	2.4	101	≤ 10	70 - 130
Chloroform	0	10	10	11	102	109	6.0	105	≤ 25	70 - 130
1,1-Dichloroethane	0	10	10	10	101	102	1.5	102	≤ 10	70 - 130
1,2-Dichloroethane	0	10	10	11	104	106	2.6	105	≤ 10	70 - 130
1,1-Dichloroethene	0.12	10	11	11	114	104	8.5	109	≤ 11	70 - 130
Tetrachloroethene	0.040	10	11	11	106	108	2.5	107	≤ 10	70 - 130
Toluene	0	10	9.9	10	99	101	2.0	100	≤ 19	70 - 130
Trichloroethene	0.054	10	9.5	10	95	104	9.7	99	≤ 11	70 - 130

Definition of Terms

R1..... Result of Sample Analysis
Sp..... Spike Concentration added to sample
MS..... Matrix Spike Result
MSD..... Matrix Spike Duplicate Result
PR1..... Percent Recovery of MS; $((MS-R1)/SP) \times 100$
PR2..... Percent Recovery of MSD; $((MSD-R1)/SP) \times 100$
RPD..... Relative Percent Difference; $((MS-MSD)/(MS+MSD)/2) \times 100$
Mean PR..... Mean Percent Recovery
Acceptance Limits Determined by in-house Control Charts



2852 Alton Ave., Irvine, CA 92714 (714) 261-1022 FAX (714) 261-1222
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16525 Sherman Way, Suite C-11, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
2465 W. 12th St., Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1222

LCS DATA REPORT

EPA Method 601/602

Matrix: Water

Date: 12/03/96

Batch #: FL03111W

<u>Analyte</u>	<u>Spike Conc.</u>	<u>Result</u>	<u>% Recovery</u>	<u>ACP</u>
Benzene	10	10	102	80 - 120 %
Chloroform	10	11	113	80 - 120 %
1,1-Dichloroethane	10	10	105	80 - 120 %
1,2-Dichloroethane	10	12	118	80 - 120 %
1,1-Dichloroethene	10	11	106	80 - 120 %
Tetrachloroethene	10	10	100	80 - 120 %
Toluene	10	10	100	80 - 120 %
Trichloroethene	10	10	105	80 - 120 %

Definition of Terms

LCS Laboratory Control Sample

Spike Conc Result of Sample Analysis

Result Result of Laboratory Control Sample Analysis

%Recovery Percent Recovery of LCS; ((Result - Spike Conc.) / Spike Conc.) X 100

ACP Acceptance Limits for Percent Recovery

ERM-West, Inc.

CHAIN OF CUSTODY RECORD

455 Capitol Mall, Suite 800 • Sacramento, CA • 95814 • (916) 444-9378 • Fax (916) 444-5313

NO: 1578

123137 Page 1 of 1

PROJECT # 6018, 21

PROJECT NAME TUCSON ANA

SAMPLER: (PRINT NAME) (SIGNATURE)

DAVID S. BETTS

RECEIVING LABORATORY

QUANTUM ENV. SERVICES
1721 S. GRAND AVE.
SANTA ANA, CA. (714) 258-8610

REQUESTED PARAMETERS

#	MATRIX	WATER									
		CONTRATE	CONTAMINANT								
	OF										
	CON										
	TA										
	NE										
	RS										

1000
P108
EPA METHOD
APPROVED

SAMPLE ID.	DATE	TIME	COP	GRAB	SAMPLING METHOD	PRESSURE	VALVE	SAMPLING VOLUME		RECEIVED BY	DATE	TIME
								ICF	ML			
TB/1/96-1	1/21/96	—	—	HCl	Y	80 ml	2	X	X			
W03-L-96-2	0855	X	500	Pump	Y	120 ml	3	X	X			
W03-U-96-2	0930	—	—	—	—	—	—	X	X			
W71-U-96-2	1140	—	—	—	—	—	—	X	X			
W71-L-96-2	1222	—	—	—	—	—	—	X	X			
W04-U-96-2	1422	—	—	—	—	—	—	X	X			
W42-L-96-2	1550	—	—	—	—	—	—	X	X			
W92-U-96-2	1710	—	—	—	—	—	—	X	X			
W71-L-96-2*	1222	—	—	—	—	—	—	X	X			

REINQUISITION BY (SIGNATURE) DATE TIME RECEIVED BY DATE TIME FIELD REMARKS

DAVID S. BETTS 1/21/96 1800 1020 1020

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REINQUISITION BY (SIGNATURE) DATE TIME RECEIVED BY DATE TIME

REMARKS ON SAMPLE RECEIPT

- BOTTLE INTACT
- CUSTODY SEALS
- CHILLED
- PRESERVED
- SEALS INTACT
- SEE REMARKS

SEND REPORT TO:

MS. ROBIN WEESEVER
(SCOTT SWAN OFFICE)

Quanterra Incorporated
1721 South Grand Avenue
Santa Ana, California 92705

714 258-8610 Telephone
714 258-0921 Fax



January 16, 1997

ERM-WEST, INC.
5111 N SCOTTSDALE ROAD, SUITE 108
SCOTTSDALE, AZ 85250
ATTN: MS. ROBIN WEESNER

LIMS NO.: 123170-0001/0006
DATE SAMPLED: 22-NOV-1996
DATE SAMPLE REC'D: 23-NOV-1996
PROJECT: 6018.21 / TUCSON ANG

Enclosed with this letter is the report containing the analytical results for the project specified above.

The Narrative section included in the following attachment provides a detailed description of all events that occurred during sample processing, analysis, and data review as applicable to the samples and analytical methods requested.

Report data sheets contain a list of the requested constituents measured in each test, the analytical results, and the standard reporting limits (RLs). Reporting limits are adjusted to reflect any dilution or dry weight correction, when applicable.

Preliminary data were provided on December 13, 1996 at 16:15 to Robin Weesner.

The report shall not be reproduced except in full, without the written approval of the laboratory.

If you have any questions regarding the data provided in this report, please call Keith Aleckson at (714) 258-8610. Release of this report has been authorized by the Lab Director or the designee as demonstrated by the following signature.

Sincerely,

A handwritten signature in black ink, appearing to read "Keith Aleckson".

Keith A. Aleckson
Project Manager

cc: Project File

TABLE OF CONTENTS

LIMS # 123170

Cover Letter	1
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Narrative	4
Chain-of-Custody Records and Sample Description Information	
Analytical Results Summary (LIMS Report)	
A. LIMS Datasheets	
B. QC Summaries	

CASE NARRATIVE

LIMS # 123170

I. CONDITION UPON RECEIPT

Cooler was received intact. The temperature of the cooler was 2.9°C.

Sample containers were received intact. The VOA vials did not contain headspace. Sample container labels did agree with the COC as to sample ID, collection date/time, requested tests and preservatives.

II. ORGANIC ANALYSES (BY METHOD: SW8010)

Per agreement with ERM-West, the samples were subcontracted to Del Mar Laboratories for analysis.

HOLDING TIME

All analyses were performed within method- and project-specific holding times.

METHOD BLANK

All method blanks met method- and/or project-specific QC criteria.

MS/MSD/LCS/DCS AND RPDs

All spike recovery and RPD data met method- and/or project-specific QC criteria.

SURROGATE RECOVERIES

All surrogate spike recoveries in samples and in QC samples met method- and/or project-specific QC criteria.

CALIBRATIONS

All calibrations and calibration verifications met method- and/or project-specific QC criteria.

SAMPLE DESCRIPTION INFORMATION
for
ERM-West, Inc.

Lab ID	Client ID	Matrix	Sampled Date	Received Date
123170-0001-SA	TB112296-1	WATER-QA	22 NOV 96	23 NOV 96
123170-0002-SA	MW73-U-96-2	AQUEOUS	22 NOV 96 09:28	23 NOV 96
123170-0003-SA	MW74-L-96-2	AQUEOUS	22 NOV 96 10:37	23 NOV 96
123170-0004-SA	MW74-U-96-2	AQUEOUS	22 NOV 96 11:33	23 NOV 96
123170-0005-SA	MW05-L-96-2	AQUEOUS	22 NOV 96 14:40	23 NOV 96
123170-0006-SA	MW05-U-96-2	AQUEOUS	22 NOV 96 15:50	23 NOV 96



Del Mar Analytical

Quanterra Inc.
1721 So. Grand Ave.
Santa Ana, CA 92705
Attention: Keith Aleckson

Client Project ID: 123170
ERM-West/Tucson Ang.
Sample Descript: Water, TB112296-1
Lab Number: FK04362

2852 Alton Ave., Irvine, CA 92714 (714) 261-1022 FAX (714) 261-1228
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
16525 Sherman Way, Suite C-11, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
2465 W. 12th St., Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1338

Sampled: Nov 22, 1996
Received: Nov 25, 1996
Extracted: Dec 5, 1996
Analyzed: Dec 5, 1996
Reported: Dec 6, 1996

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit µg/L (ppb)	Sample Result µg/L (ppb)
Bromodichloromethane.....	1.0	.....
Bromoform.....	1.0	.....
Bromomethane.....	1.0	.....
Carbon tetrachloride.....	1.0	.....
Chlorobenzene.....	1.0	.....
Chloroethane.....	1.0	.....
2-Chloroethylvinyl ether.....	1.0	.....
Chloroform.....	1.0	.....
Chloromethane.....	1.0	.....
Dibromochloromethane.....	1.0	.....
1,2-Dichlorobenzene.....	1.0	.....
1,3-Dichlorobenzene.....	1.0	.....
1,4-Dichlorobenzene.....	1.0	.....
1,1-Dichloroethane.....	1.0	.....
1,2-Dichloroethane.....	1.0	.....
1,1-Dichloroethene.....	1.0	.....
cis-1,2-Dichloroethene.....	1.0	.....
trans-1,2-Dichloroethene.....	1.0	.....
1,2-Dichloropropane.....	1.0	.....
cis-1,3-Dichloropropene.....	1.0	.....
trans-1,3-Dichloropropene.....	1.0	.....
Methylene chloride.....	1.0	.....
1,1,2,2-Tetrachloroethane.....	1.0	.....
Tetrachloroethene.....	1.0	.....
1,1,1-Trichloroethane.....	1.0	.....
1,1,2-Trichloroethane.....	1.0	.....
Trichloroethene.....	1.0	.....
Trichlorofluoromethane.....	1.0	.....
Vinyl chloride.....	1.0	.....
Dichlorodifluoromethane.....	5.0	.....

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)


Nick Haring
Project Manager

Surrogate Standard Recovery:
1-Chloro-3-fluorobenzene..... 103%

Results pertain only to samples tested in the laboratory. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical.

FK04362.QUN <1 of 7>



Quanterra Inc.
1721 So. Grand Ave.
Santa Ana, CA 92705
Attention: Keith Aleckson

Client Project ID: 123170
ERM-West/Tucson Ang.
Sample Descript: Water, MW73-U-96-2
Lab Number: FK04363

2852 Alton Ave., Irvine, CA 92714 (714) 261-1022 FAX (714) 261-1222
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
16525 Sherman Way, Suite C-11, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
2465 W. 12th St., Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1322

Sampled: Nov 22, 1996
Received: Nov 25, 1996
Extracted: Dec 5, 1996
Analyzed: Dec 5, 1996
Reported: Dec 6, 1996

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit µg/L (ppb)	Sample Result	
			µg/L (ppb)
Bromodichloromethane.....	1.0	.....	N.D.
Bromoform.....	1.0	.....	N.D.
Bromomethane.....	1.0	.....	N.D.
Carbon tetrachloride.....	1.0	.....	N.D.
Chlorobenzene.....	1.0	.....	N.D.
Chloroethane.....	1.0	.....	N.D.
2-Chloroethylvinyl ether.....	1.0	.....	N.D.
Chloroform.....	1.0	.....	N.D.
Chloromethane.....	1.0	.....	N.D.
Dibromochloromethane.....	1.0	.....	N.D.
1,2-Dichlorobenzene.....	1.0	.....	N.D.
1,3-Dichlorobenzene.....	1.0	.....	N.D.
1,4-Dichlorobenzene.....	1.0	.....	N.D.
1,1-Dichloroethane.....	1.0	.....	N.D.
1,2-Dichloroethane.....	1.0	.....	N.D.
1,1-Dichloroethene.....	1.0	.....	N.D.
cis-1,2-Dichloroethene.....	1.0	.....	N.D.
trans-1,2-Dichloroethene.....	1.0	.....	N.D.
1,2-Dichloropropane.....	1.0	.....	N.D.
cis-1,3-Dichloropropene.....	1.0	.....	N.D.
trans-1,3-Dichloropropene.....	1.0	.....	N.D.
Methylene chloride.....	1.0	.....	N.D.
1,1,2,2-Tetrachloroethane.....	1.0	.....	N.D.
Tetrachloroethene.....	1.0	.....	N.D.
1,1,1-Trichloroethane.....	1.0	.....	N.D.
1,1,2-Trichloroethane.....	1.0	.....	N.D.
Trichloroethene.....	1.0	.....	14
Trichlorofluoromethane.....	1.0	.....	N.D.
Vinyl chloride.....	1.0	.....	N.D.
Dichlorodifluoromethane.....	5.0	.....	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)

Nick Haring
Project Manager

Surrogate Standard Recovery:
1-Chloro-3-fluorobenzene..... 102%

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FK04362.QUN <2 of 7>



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 16525 Sherman Way, Suite C-11, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
 2465 W. 12th St., Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1338

Quanterra Inc.
 1721 So. Grand Ave.
 Santa Ana, CA 92705
 Attention: Keith Aleckson

Client Project ID: 123170
 ERM-West/Tucson Ang.
 Sample Descript: Water, MW74-L-96-2
 Lab Number: FK04364

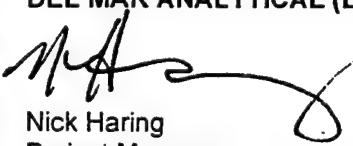
Sampled: Nov 22, 1996
 Received: Nov 25, 1996
 Extracted: Dec 5, 1996
 Analyzed: Dec 5, 1996
 Reported: Dec 6, 1996

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit µg/L (ppb)	Sample Result	
		µg/L (ppb)	
Bromodichloromethane.....	1.0	.....	N.D.
Bromoform.....	1.0	.....	N.D.
Bromomethane.....	1.0	.....	N.D.
Carbon tetrachloride.....	1.0	.....	N.D.
Chlorobenzene.....	1.0	.....	N.D.
Chloroethane.....	1.0	.....	N.D.
2-Chloroethylvinyl ether.....	1.0	.....	N.D.
Chloroform.....	1.0	.....	N.D.
Chloromethane.....	1.0	.....	N.D.
Dibromochloromethane.....	1.0	.....	N.D.
1,2-Dichlorobenzene.....	1.0	.....	N.D.
1,3-Dichlorobenzene.....	1.0	.....	N.D.
1,4-Dichlorobenzene.....	1.0	.....	N.D.
1,1-Dichloroethane.....	1.0	.....	N.D.
1,2-Dichloroethane.....	1.0	.....	N.D.
1,1-Dichloroethene.....	1.0	.....	N.D.
cis-1,2-Dichloroethene.....	1.0	.....	N.D.
trans-1,2-Dichloroethene.....	1.0	.....	N.D.
1,2-Dichloropropane.....	1.0	.....	N.D.
cis-1,3-Dichloropropene.....	1.0	.....	N.D.
trans-1,3-Dichloropropene.....	1.0	.....	N.D.
Methylene chloride.....	1.0	.....	N.D.
1,1,2,2-Tetrachloroethane.....	1.0	.....	N.D.
Tetrachloroethene.....	1.0	.....	N.D.
1,1,1-Trichloroethane.....	1.0	.....	N.D.
1,1,2-Trichloroethane.....	1.0	.....	N.D.
Trichloroethene.....	1.0	.....	15
Trichlorofluoromethane.....	1.0	.....	N.D.
Vinyl chloride.....	1.0	.....	N.D.
Dichlorodifluoromethane.....	5.0	.....	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)



Nick Haring
 Project Manager

Surrogate Standard Recovery:
1-Chloro-3-fluorobenzene..... 101%

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FK04362.QUN <3 of 7>



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 16525 Sherman Way, Suite C-11, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
 2465 W. 12th St., Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1343

Quanterra Inc.
 1721 So. Grand Ave.
 Santa Ana, CA 92705
 Attention: Keith Aleckson

Client Project ID: 123170
 ERM-West/Tucson Ang.
 Sample Descript: Water, MW74-U-96-2
 Lab Number: FK04365

Sampled: Nov 22, 1996
 Received: Nov 25, 1996
 Extracted: Dec 5, 1996
 Analyzed: Dec 5, 1996
 Reported: Dec 6, 1996

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit µg/L (ppb)	Sample Result	
		µg/L (ppb)	
Bromodichloromethane.....	1.0	.....	N.D.
Bromoform.....	1.0	.....	N.D.
Bromomethane.....	1.0	.....	N.D.
Carbon tetrachloride.....	1.0	.....	N.D.
Chlorobenzene.....	1.0	.....	N.D.
Chloroethane.....	1.0	.....	N.D.
2-Chloroethylvinyl ether.....	1.0	.....	N.D.
Chloroform.....	1.0	.....	N.D.
Chloromethane.....	1.0	.....	N.D.
Dibromochloromethane.....	1.0	.....	N.D.
1,2-Dichlorobenzene.....	1.0	.....	N.D.
1,3-Dichlorobenzene.....	1.0	.....	N.D.
1,4-Dichlorobenzene.....	1.0	.....	N.D.
1,1-Dichloroethane.....	1.0	.....	N.D.
1,2-Dichloroethane.....	1.0	.....	N.D.
1,1-Dichloroethene.....	1.0	.....	N.D.
cis-1,2-Dichloroethene.....	1.0	.....	N.D.
trans-1,2-Dichloroethene.....	1.0	.....	N.D.
1,2-Dichloropropane.....	1.0	.....	N.D.
cis-1,3-Dichloropropene.....	1.0	.....	N.D.
trans-1,3-Dichloropropene.....	1.0	.....	N.D.
Methylene chloride.....	1.0	.....	N.D.
1,1,2,2-Tetrachloroethane.....	1.0	.....	N.D.
Tetrachloroethene.....	1.0	.....	N.D.
1,1,1-Trichloroethane.....	1.0	.....	N.D.
1,1,2-Trichloroethane.....	1.0	.....	N.D.
Trichloroethene.....	1.0	.....	3.9
Trichlorofluoromethane.....	1.0	.....	N.D.
Vinyl chloride.....	1.0	.....	N.D.
Dichlorodifluoromethane.....	5.0	.....	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)

Nick Haring
 Project Manager

Surrogate Standard Recovery:

1-Chloro-3-fluorobenzene.....	100%
-------------------------------	------

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 16525 Sherman Way, Suite C-11, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
 2465 W. 12th St., Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1338

Quanterra Inc.
 1721 So. Grand Ave.
 Santa Ana, CA 92705
 Attention: Keith Aleckson

Client Project ID: 123170
 ERM-West/Tucson Ang.
 Sample Descript: Water, MW05-L-96-2
 Lab Number: FK04366

Sampled: Nov 22, 1996
 Received: Nov 25, 1996
 Extracted: Dec 5, 1996
 Analyzed: Dec 5, 1996
 Reported: Dec 6, 1996

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit µg/L (ppb)	Sample Result	
			µg/L (ppb)
Bromodichloromethane.....	1.0	.....	N.D.
Bromoform.....	1.0	.....	N.D.
Bromomethane.....	1.0	.....	N.D.
Carbon tetrachloride.....	1.0	.....	N.D.
Chlorobenzene.....	1.0	.....	N.D.
Chloroethane.....	1.0	.....	N.D.
2-Chloroethylvinyl ether.....	1.0	.....	N.D.
Chloroform.....	1.0	.....	N.D.
Chloromethane.....	1.0	.....	N.D.
Dibromochloromethane.....	1.0	.....	N.D.
1,2-Dichlorobenzene.....	1.0	.....	N.D.
1,3-Dichlorobenzene.....	1.0	.....	N.D.
1,4-Dichlorobenzene.....	1.0	.....	N.D.
1,1-Dichloroethane.....	1.0	.....	N.D.
1,2-Dichloroethane.....	1.0	.....	N.D.
1,1-Dichloroethene.....	1.0	.....	N.D.
cis-1,2-Dichloroethene.....	1.0	.....	N.D.
trans-1,2-Dichloroethene.....	1.0	.....	N.D.
1,2-Dichloropropane.....	1.0	.....	N.D.
cis-1,3-Dichloropropene.....	1.0	.....	N.D.
trans-1,3-Dichloropropene.....	1.0	.....	N.D.
Methylene chloride.....	1.0	.....	N.D.
1,1,2,2-Tetrachloroethane.....	1.0	.....	N.D.
Tetrachloroethene.....	1.0	.....	N.D.
1,1,1-Trichloroethane.....	1.0	.....	N.D.
1,1,2-Trichloroethane.....	1.0	.....	N.D.
Trichloroethene.....	1.0	.....	7.8
Trichlorofluoromethane.....	1.0	.....	N.D.
Vinyl chloride.....	1.0	.....	N.D.
Dichlorodifluoromethane.....	5.0	.....	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)



Nick Haring
 Project Manager

Surrogate Standard Recovery:

1-Chloro-3-fluorobenzene.....

99%

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FK04362.QUN <5 of 7>



Quanterra Inc.
1721 So. Grand Ave.
Santa Ana, CA 92705
Attention: Keith Aleckson

Client Project ID: 123170
ERM-West/Tucson Ang.
Sample Descript: Water, MW05-U-96-2
Lab Number: FK04367

2852 Alton Ave., Irvine, CA 92714 (714) 261-1022 FAX (714) 261-1233
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
16525 Sherman Way, Suite C-11, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
2465 W. 12th St., Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1333

Sampled: Nov 22, 1996
Received: Nov 25, 1996
Extracted: Dec 5, 1996
Analyzed: Dec 5, 1996
Reported: Dec 6, 1996

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit µg/L (ppb)	Sample Result	
		µg/L (ppb)	
Bromodichloromethane.....	1.0	.....	N.D.
Bromoform.....	1.0	.....	N.D.
Bromomethane.....	1.0	.....	N.D.
Carbon tetrachloride.....	1.0	.....	N.D.
Chlorobenzene.....	1.0	.....	N.D.
Chloroethane.....	1.0	.....	N.D.
2-Chloroethylvinyl ether.....	1.0	.....	N.D.
Chloroform.....	1.0	.....	N.D.
Chloromethane.....	1.0	.....	N.D.
Dibromochloromethane.....	1.0	.....	N.D.
1,2-Dichlorobenzene.....	1.0	.....	N.D.
1,3-Dichlorobenzene.....	1.0	.....	N.D.
1,4-Dichlorobenzene.....	1.0	.....	N.D.
1,1-Dichloroethane.....	1.0	.....	N.D.
1,2-Dichloroethane.....	1.0	.....	N.D.
1,1-Dichloroethene.....	1.0	.....	N.D.
cis-1,2-Dichloroethene.....	1.0	.....	N.D.
trans-1,2-Dichloroethene.....	1.0	.....	N.D.
1,2-Dichloropropane.....	1.0	.....	N.D.
cis-1,3-Dichloropropene.....	1.0	.....	N.D.
trans-1,3-Dichloropropene.....	1.0	.....	N.D.
Methylene chloride.....	1.0	.....	N.D.
1,1,2,2-Tetrachloroethane.....	1.0	.....	N.D.
Tetrachloroethene.....	1.0	.....	N.D.
1,1,1-Trichloroethane.....	1.0	.....	N.D.
1,1,2-Trichloroethane.....	1.0	.....	N.D.
Trichloroethene.....	1.0	.....	9.9
Trichlorofluoromethane.....	1.0	.....	N.D.
Vinyl chloride.....	1.0	.....	N.D.
Dichlorodifluoromethane.....	5.0	.....	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)

Nick Haring
Project Manager

Surrogate Standard Recovery:
1-Chloro-3-fluorobenzene..... 100%

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FK04362.QUN <6 of 7>

Quanterra Inc.
 1721 So. Grand Ave.
 Santa Ana, CA 92705
 Attention: Keith Aleckson

Method Blank

Extracted: Dec 5, 1996
 Analyzed: Dec 5, 1996
 Reported: Dec 6, 1996
 Matrix: Water

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit µg/L (ppb)	Sample Result	
		µg/L (ppb)	µg/L (ppb)
Bromodichloromethane.....	1.0	.....	N.D.
Bromoform.....	1.0	.....	N.D.
Bromomethane.....	1.0	.....	N.D.
Carbon tetrachloride.....	1.0	.....	N.D.
Chlorobenzene.....	1.0	.....	N.D.
Chloroethane.....	1.0	.....	N.D.
2-Chloroethylvinyl ether.....	1.0	.....	N.D.
Chloroform.....	1.0	.....	N.D.
Chloromethane.....	1.0	.....	N.D.
Dibromochloromethane.....	1.0	.....	N.D.
1,2-Dichlorobenzene.....	1.0	.....	N.D.
1,3-Dichlorobenzene.....	1.0	.....	N.D.
1,4-Dichlorobenzene.....	1.0	.....	N.D.
1,1-Dichloroethane.....	1.0	.....	N.D.
1,2-Dichloroethane.....	1.0	.....	N.D.
1,1-Dichloroethene.....	1.0	.....	N.D.
cis-1,2-Dichloroethene.....	1.0	.....	N.D.
trans-1,2-Dichloroethene.....	1.0	.....	N.D.
1,2-Dichloropropane.....	1.0	.....	N.D.
cis-1,3-Dichloropropene.....	1.0	.....	N.D.
trans-1,3-Dichloropropene.....	1.0	.....	N.D.
Methylene chloride.....	1.0	.....	N.D.
1,1,2,2-Tetrachloroethane.....	1.0	.....	N.D.
Tetrachloroethene.....	1.0	.....	N.D.
1,1,1-Trichloroethane.....	1.0	.....	N.D.
1,1,2-Trichloroethane.....	1.0	.....	N.D.
Trichloroethene.....	1.0	.....	N.D.
Trichlorofluoromethane.....	1.0	.....	N.D.
Vinyl chloride.....	1.0	.....	N.D.
Dichlorodifluoromethane.....	5.0	.....	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)


 Nick Haring
 Project Manager

Surrogate Standard Recovery:

1-Chloro-3-fluorobenzene.....

106%

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FK04362.QUN <7 of 7>



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16525 Sherman Way, Suite C-11, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
2465 W. 12th St., Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1...3

LCS DATA REPORT

EPA Method 601/602

Matrix: Water

Date: 12/05/96

Batch #: FL05111W

<u>Analyte</u>	<u>Spike Conc.</u>	<u>Result</u>	<u>% Recovery</u>	<u>ACP</u>
----------------	--------------------	---------------	-------------------	------------

Benzene	10	10	102	80 - 120 %
Chloroform	10	11	108	80 - 120 %
1,1-Dichloroethane	10	9.4	94	80 - 120 %
1,2-Dichloroethane	10	11	115	80 - 120 %
1,1-Dichloroethene	10	9.0	90	80 - 120 %
Tetrachloroethene	10	9.8	98	80 - 120 %
Toluene	10	9.9	99	80 - 120 %
Trichloroethene	10	10	104	80 - 120 %

Definition of Terms

LCS Laboratory Control Sample

Spike Conc Result of Sample Analysis

Result Result of Laboratory Control Sample Analysis

%Recovery Percent Recovery of LCS; ((Result - Spike Conc.) / Spike Conc.) X 100

ACP Acceptance Limits for Percent Recovery



Del Mar Analytical

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2465 W. 12th St., Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1338

MS/MSD DATA REPORT

EPA Method 601/602

Matrix: Water

Date: 12/05/96

Sample #: FL00165

Batch #: FL05111W

<u>Analyte</u>	<u>R1</u>	<u>Sp</u>	<u>MS</u>	<u>MSD</u>	<u>PR1</u>	<u>PR2</u>	<u>RPD</u>	<u>Mean PR</u>	<u>Acceptance Limits</u>	
	ppb	ppb	ppb	ppb	%	%	%	%	RPD	Mean PR
Benzene	0	10	10	10	104	103	0.95	104	≤10	70 - 130
Chloroform	0	10	12	13	120	125	4.0	123	≤25	70 - 130
1,1-Dichloroethane	0	10	10	10	103	101	1.4	102	≤10	70 - 130
1,2-Dichloroethane	0	10	12	12	119	118	0.72	119	≤10	70 - 130
1,1-Dichloroethene	0	10	9.8	9.7	98	97	1.1	97	≤11	70 - 130
Tetrachloroethene	0	10	10	10	103	102	0.43	102	≤10	70 - 130
Toluene	0	10	10	10	102	101	0.99	102	≤19	70 - 130
Trichloroethene	0	10	11	10	110	104	5.2	107	≤11	70 - 130

Definition of Terms

R1..... Result of Sample Analysis

Sp..... Spike Concentration added to sample

MS..... Matrix Spike Result

MSD..... Matrix Spike Duplicate Result

PR1..... Percent Recovery of MS; $((MS-R1)/SP) \times 100$

PR2..... Percent Recovery of MSD; $((MSD-R1)/SP) \times 100$

RPD..... Relative Percent Difference; $((MS-MSD)/(MS+MSD)/2) \times 100$

Mean PR..... Mean Percent Recovery

Acceptance Limits Determined by in-house Control Charts

Quanterra Incorporated
1721 South Grand Avenue
Santa Ana, California 92705

714 258-8610 Telephone
714 258-0921 Fax



January 16, 1997

ERM-WEST, INC.
5111 N SCOTTSDALE ROAD, SUITE 108
SCOTTSDALE, AZ 85250
ATTN: MS. ROBIN WEESNER

LIMS NO.: 123313-0001/0019
DATE SAMPLED: 02/03-DEC-1996
DATE SAMPLE REC'D: 04-DEC-1996
PROJECT: 6018.21 / TUCSON ANG

Enclosed with this letter is the report containing the analytical results for the project specified above.

The Narrative section included in the following attachment provides a detailed description of all events that occurred during sample processing, analysis, and data review as applicable to the samples and analytical methods requested.

Report data sheets contain a list of the requested constituents measured in each test, the analytical results, and the standard reporting limits (RLs). Reporting limits are adjusted to reflect any dilution or dry weight correction, when applicable.

Preliminary data were provided on December 19, 1996 at 13:28 to Robin Weesner.

The report shall not be reproduced except in full, without the written approval of the laboratory.

If you have any questions regarding the data provided in this report, please call Keith Aleckson at (714) 258-8610. Release of this report has been authorized by the Lab Director or the designee as demonstrated by the following signature.

Sincerely,

A handwritten signature in black ink, appearing to read "Keith Aleckson".

Keith A. Aleckson
Project Manager

cc: Project File

TABLE OF CONTENTS

LIMS # 123313

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Chain-of-Custody Records and Sample Description Information	
Analytical Results Summary (LIMS Report)	
A. LIMS Datasheets	
B. QC Summaries	

CASE NARRATIVE

LIMS # 123313

I. CONDITION UPON RECEIPT

Cooler was received intact. The temperature of the cooler was 2.4°C. The temperature blank was measured at 2.6°C.

Sample containers were received intact. The VOA vials did not contain headspace. Sample container labels did agree with the COC as to sample ID, collection date/time, requested tests and preservatives.

II. ORGANIC ANALYSES (BY METHOD: SW8010)

Per agreement with ERM-West, the samples were subcontracted to Del Mar Laboratories for analysis.

HOLDING TIME

All analyses were performed within method- and project-specific holding times, with the following exceptions: MW93-L-96-2, MW96-U-96-2, MW96-U-96-2*, MW96-L-96-2, MW97-U-96-2, MW97-L-96-2, MW97-L-96-2*, and TB120296-1. The holding times were missed by one day. Per our discussion with ERM-West, the results are reported. There is no charge for the analyses outside of holding time.

METHOD BLANK

All method blanks met method- and/or project-specific QC criteria.

MS/MSD/LCS/DCS AND RPDs

All spike recovery and RPD data met method- and/or project-specific QC criteria.

SURROGATE RECOVERIES

All surrogate spike recoveries in samples and in QC samples met method- and/or project-specific QC criteria.

CALIBRATIONS

All calibrations and calibration verifications met method- and/or project-specific QC criteria.

ERMI-West, Inc.

CHAIN OF CUSTODY RECORD

123313

455 Capitol Mall, Suite 800 • Sacramento, CA • 95814 • (916) 444-9378 • Fax (916) 444-5313

NO: 1580

Page

1

of

REQUESTED PARAMETERS									
PROJECT #	PROJECT NAME		# OF CONTAINERS		WATER		GAS		MATRIX
SAMPLER: (PRINT NAME)	(SIGNATURE)		CONTAINER		CONTAINER		CONTAINER		OF
GC/8.21	TUCSON AUG SEMI ANNUAL GROW.		1		1		1		1
FRANK LAMPHERE	Tina Janice		1		1		1		1
RECEIVING LABORATORY									
QUANTERRA SANTA ANA SANTA ANA CA 92705 7/4/2010 8:10									
SAMPLE ID.	DATE	TIME	COMB	SAMPLING METHOD	GRAB	PRESEVER	VIALS	SAMPLING VOLUME	
• MW93-L-96-1	12-2-96	—		LAD	HCL	HCL	2	80mL	X
• MW93-L-96-2	12-2-96	17:10	X	54B pump	HCL	HCL	3	120mL	X
• MW96-U-96-2	12-2-96	18:46	X	54B pump	HCL	HCL	3	120mL	X
• MW96-U-96-2*	12-2-96	8:41	X	Sub	HCL	HCL	3	120mL	X
• MW96-L-96-2	12-2-96	17:10	X	54B pump	HCL	HCL	3	120mL	X
• MW97-U-96-2	12-2-96	20:45	X	Sub	HCL	HCL	3	120mL	X
• MW97-L-96-2	12-2-96	21:15	X	54B pump	HCL	HCL	3	120mL	X
• MW97-L-96-2*	12-2-96	21:15	X	Sub	HCL	HCL	3	120mL	X
• MW93-U-96-2	12-3-96	08:10	X	54B pump	HCL	HCL	3	120mL	X
• MW93-U-96-2*	12-3-96	08:11	X	Sub	HCL	HCL	3	120mL	X
RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY	DATE	TIME	FIELD REMARKS			
Tina Janice	12-3-96	05:30	<i>Tina Janice</i>	12-4-96	10:30				
RELINQUISHED BY (SIGNATURE)	DATE	TIME	RECEIVED BY	DATE	TIME				
REMARKS ON SAMPLE RECEIPT	REMARKS								
<input checked="" type="checkbox"/> BOTTLE INTACT <input checked="" type="checkbox"/> CUSTODY SEALS <input checked="" type="checkbox"/> CHILLED									
<input checked="" type="checkbox"/> PRESERVED <input checked="" type="checkbox"/> SEALS INTACT <input type="checkbox"/> SEE REMARKS									

SEND REPORT TO: Lab 100 USES WE12
5111 N. SCOTTSDALE RD
SCOTTSDALE AZ 85258
ENCL 6/12/2010-0107

SAMPLE DESCRIPTION INFORMATION
for
ERM-West, Inc.

Lab ID	Client ID	Matrix	Sampled Date	Received Date
123313-0001-TB	TB120296-1	WATER-QA	02 DEC 96	04 DEC 96
123313-0002-SA	MW93-L-96-2	AQUEOUS	02 DEC 96	17:10 04 DEC 96
123313-0003-SA	MW96-U-96-2	AQUEOUS	02 DEC 96	18:40 04 DEC 96
123313-0004-SA	MW96-U-96-2*	AQUEOUS	02 DEC 96	18:41 04 DEC 96
123313-0005-SA	MW96-L-96-2	AQUEOUS	02 DEC 96	19:10 04 DEC 96
123313-0005-MS	MW96-L-96-2	AQUEOUS	02 DEC 96	19:10 04 DEC 96
123313-0005-SD	MW96-L-96-2	AQUEOUS	02 DEC 96	19:10 04 DEC 96
123313-0006-SA	MW97-U-96-2	AQUEOUS	02 DEC 96	20:45 04 DEC 96
123313-0007-SA	MW97-L-96-2	AQUEOUS	02 DEC 96	21:15 04 DEC 96
123313-0008-SA	MW97-L-96-2*	AQUEOUS	02 DEC 96	21:15 04 DEC 96
123313-0009-SA	MW93-U-96-2	AQUEOUS	03 DEC 96	08:10 04 DEC 96
123313-0010-SA	MW93-U-96-2*	AQUEOUS	03 DEC 96	08:11 04 DEC 96
123313-0011-SA	MW101-U-96-2	AQUEOUS	03 DEC 96	09:30 04 DEC 96
123313-0012-SA	MW101-L-96-2	AQUEOUS	03 DEC 96	10:05 04 DEC 96
123313-0013-SA	MW102-U-96-2	AQUEOUS	03 DEC 96	11:15 04 DEC 96
123313-0014-SA	MW102-U-96-2*	AQUEOUS	03 DEC 96	11:16 04 DEC 96
123313-0015-SA	MW102-L-96-2	AQUEOUS	03 DEC 96	11:50 04 DEC 96
123313-0016-SA	MW102-L-96-2*	AQUEOUS	03 DEC 96	11:50 04 DEC 96
123313-0017-SA	MW100-L-96-2	AQUEOUS	03 DEC 96	13:05 04 DEC 96
123313-0018-SA	MW100-U-96-2	AQUEOUS	03 DEC 96	13:30 04 DEC 96
123313-0019-SA	BAKERTANK-96-2	AQUEOUS	03 DEC 96	14:30 04 DEC 96



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 2465 W. 12th St., Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1338

Quanterra Inc.
 1721 S. Grand Ave.
 Santa Ana, CA 92705
 Attention: Keith Aleckson

Client Project ID: 123313
 ERM-West/Tucson Ang.
 Sample Descript: Water, TB 120296-1
 Lab Number: FL00667

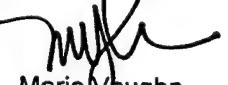
Sampled: Dec 2, 1996
 Received: Dec 4, 1996
 Extracted: Dec 17, 1996
 Analyzed: Dec 17, 1996
 Reported: Dec 18, 1996

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit µg/L (ppb)	Sample Result	
		µg/L (ppb)	
Bromodichloromethane.....	1.0	.....	N.D.
Bromoform.....	1.0	.....	N.D.
Bromomethane.....	1.0	.....	N.D.
Carbon tetrachloride.....	1.0	.....	N.D.
Chlorobenzene.....	1.0	.....	N.D.
Chloroethane.....	1.0	.....	N.D.
2-Chloroethylvinyl ether.....	1.0	.....	N.D.
Chloroform.....	1.0	.....	N.D.
Chloromethane.....	1.0	.....	N.D.
Dibromochloromethane.....	1.0	.....	N.D.
1,2-Dichlorobenzene.....	1.0	.....	N.D.
1,3-Dichlorobenzene.....	1.0	.....	N.D.
1,4-Dichlorobenzene.....	1.0	.....	N.D.
1,1-Dichloroethane.....	1.0	.....	N.D.
1,2-Dichloroethane.....	1.0	.....	N.D.
1,1-Dichloroethene.....	1.0	.....	N.D.
cis-1,2-Dichloroethene.....	1.0	.....	N.D.
trans-1,2-Dichloroethene.....	1.0	.....	N.D.
1,2-Dichloropropane.....	1.0	.....	N.D.
cis-1,3-Dichloropropene.....	1.0	.....	N.D.
trans-1,3-Dichloropropene.....	1.0	.....	N.D.
Methylene chloride.....	1.0	.....	N.D.
1,1,2,2-Tetrachloroethane.....	1.0	.....	N.D.
Tetrachloroethene.....	1.0	.....	N.D.
1,1,1-Trichloroethane.....	1.0	.....	N.D.
1,1,2-Trichloroethane.....	1.0	.....	N.D.
Trichloroethene.....	1.0	.....	N.D.
Trichlorofluoromethane.....	1.0	.....	N.D.
Vinyl chloride.....	1.0	.....	N.D.
Dichlorodifluoromethane.....	5.0	.....	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)


 Marie Vaughn
 Project Manager

Surrogate Standard Recovery:

1-Chloro-3-fluorobenzene..... 108%

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FL00667.QUN <1 of 20>



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 16525 Sherman Way, Suite C-II, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
 2465 W. 12th St., Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1323

Quanterra Inc.
 1721 S. Grand Ave.
 Santa Ana, CA 92705
 Attention: Keith Aleckson

Client Project ID: 123313
 ERM-West/Tucson Ang.
 Sample Descript: Water, MW 93-L-96-2
 Lab Number: FL00668

Sampled: Dec 2, 1996
 Received: Dec 4, 1996
 Extracted: Dec 17, 1996
 Analyzed: Dec 17, 1996
 Reported: Dec 18, 1996

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit µg/L (ppb)	Sample Result	
			µg/L (ppb)
Bromodichloromethane.....	1.0	.....	N.D.
Bromoform.....	1.0	.....	N.D.
Bromomethane.....	1.0	.....	N.D.
Carbon tetrachloride.....	1.0	.....	N.D.
Chlorobenzene.....	1.0	.....	N.D.
Chloroethane.....	1.0	.....	N.D.
2-Chloroethylvinyl ether.....	1.0	.....	N.D.
Chloroform.....	1.0	.....	N.D.
Chloromethane.....	1.0	.....	N.D.
Dibromochloromethane.....	1.0	.....	N.D.
1,2-Dichlorobenzene.....	1.0	.....	N.D.
1,3-Dichlorobenzene.....	1.0	.....	N.D.
1,4-Dichlorobenzene.....	1.0	.....	N.D.
1,1-Dichloroethane.....	1.0	.....	N.D.
1,2-Dichloroethane.....	1.0	.....	N.D.
1,1-Dichloroethene.....	1.0	.....	N.D.
cis-1,2-Dichloroethene.....	1.0	.....	N.D.
trans-1,2-Dichloroethene.....	1.0	.....	N.D.
1,2-Dichloropropane.....	1.0	.....	N.D.
cis-1,3-Dichloropropene.....	1.0	.....	N.D.
trans-1,3-Dichloropropene.....	1.0	.....	N.D.
Methylene chloride.....	1.0	.....	N.D.
1,1,2,2-Tetrachloroethane.....	1.0	.....	N.D.
Tetrachloroethene.....	1.0	.....	N.D.
1,1,1-Trichloroethane.....	1.0	.....	N.D.
1,1,2-Trichloroethane.....	1.0	.....	N.D.
Trichloroethene.....	1.0	.....	19
Trichlorofluoromethane.....	1.0	.....	N.D.
Vinyl chloride.....	1.0	.....	N.D.
Dichlorodifluoromethane.....	5.0	.....	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)


 Marie Vaughn
 Project Manager

Surrogate Standard Recovery:

1-Chloro-3-fluorobenzene..... 104%

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FL00667.QUN <2 of 20>

Quanterra Inc.
 1721 S. Grand Ave.
 Santa Ana, CA 92705
 Attention: Keith Aleckson

Client Project ID: 123313
 ERM-West/Tucson Ang.
 Sample Descript: Water, MW 96-U-96-2
 Lab Number: FL00669

Sampled: Dec 2, 1996
 Received: Dec 4, 1996
 Extracted: Dec 17, 1996
 Analyzed: Dec 17, 1996
 Reported: Dec 18, 1996

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit µg/L (ppb)	Sample Result	
			µg/L (ppb)
Bromodichloromethane.....	1.0	.....	N.D.
Bromoform.....	1.0	.....	N.D.
Bromomethane.....	1.0	.....	N.D.
Carbon tetrachloride.....	1.0	.....	N.D.
Chlorobenzene.....	1.0	.....	N.D.
Chloroethane.....	1.0	.....	N.D.
2-Chloroethylvinyl ether.....	1.0	.....	N.D.
Chloroform.....	1.0	.....	N.D.
Chloromethane.....	1.0	.....	N.D.
Dibromochloromethane.....	1.0	.....	N.D.
1,2-Dichlorobenzene.....	1.0	.....	N.D.
1,3-Dichlorobenzene.....	1.0	.....	N.D.
1,4-Dichlorobenzene.....	1.0	.....	N.D.
1,1-Dichloroethane.....	1.0	.....	N.D.
1,2-Dichloroethane.....	1.0	.....	N.D.
1,1-Dichloroethene.....	1.0	.....	N.D.
cis-1,2-Dichloroethene.....	1.0	.....	N.D.
trans-1,2-Dichloroethene.....	1.0	.....	N.D.
1,2-Dichloropropane.....	1.0	.....	N.D.
cis-1,3-Dichloropropene.....	1.0	.....	N.D.
trans-1,3-Dichloropropene.....	1.0	.....	N.D.
Methylene chloride.....	1.0	.....	N.D.
1,1,2,2-Tetrachloroethane.....	1.0	.....	N.D.
Tetrachloroethene.....	1.0	.....	N.D.
1,1,1-Trichloroethane.....	1.0	.....	N.D.
1,1,2-Trichloroethane.....	1.0	.....	N.D.
Trichloroethene.....	1.0	.....	18
Trichlorofluoromethane.....	1.0	.....	N.D.
Vinyl chloride.....	1.0	.....	N.D.
Dichlorodifluoromethane.....	5.0	.....	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)


 Marie Vaughn
 Project Manager

Surrogate Standard Recovery:

1-Chloro-3-fluorobenzene..... 105%

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FL00667.QUN <3 of 20>



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2465 W. 12th St., Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1333

Quanterra Inc.
1721 S. Grand Ave.
Santa Ana, CA 92705
Attention: Keith Aleckson

Client Project ID: 123313
ERM-West/Tucson Ang.
Sample Descript: Water, MW 96-U-96-2*
Lab Number: FL00670

Sampled: Dec 2, 1996
Received: Dec 4, 1996
Extracted: Dec 17, 1996
Analyzed: Dec 17, 1996
Reported: Dec 18, 1996

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit µg/L (ppb)	Sample Result µg/L (ppb)
Bromodichloromethane.....	1.0	.....
Bromoform.....	1.0	.....
Bromomethane.....	1.0	.....
Carbon tetrachloride.....	1.0	.....
Chlorobenzene.....	1.0	.....
Chloroethane.....	1.0	.....
2-Chloroethylvinyl ether.....	1.0	.....
Chloroform.....	1.0	.....
Chloromethane.....	1.0	.....
Dibromochloromethane.....	1.0	.....
1,2-Dichlorobenzene.....	1.0	.....
1,3-Dichlorobenzene.....	1.0	.....
1,4-Dichlorobenzene.....	1.0	.....
1,1-Dichloroethane.....	1.0	.....
1,2-Dichloroethane.....	1.0	.....
1,1-Dichloroethene.....	1.0	.....
cis-1,2-Dichloroethene.....	1.0	.....
trans-1,2-Dichloroethene.....	1.0	.....
1,2-Dichloropropane.....	1.0	.....
cis-1,3-Dichloropropene.....	1.0	.....
trans-1,3-Dichloropropene.....	1.0	.....
Methylene chloride.....	1.0	.....
1,1,2,2-Tetrachloroethane.....	1.0	.....
Tetrachloroethene.....	1.0	.....
1,1,1-Trichloroethane.....	1.0	.....
1,1,2-Trichloroethane.....	1.0	.....
Trichloroethene.....	1.0	.....
Trichlorofluoromethane.....	1.0	.....
Vinyl chloride.....	1.0	.....
Dichlorodifluoromethane.....	5.0	.....

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)

Marie Vaughn
Project Manager

Surrogate Standard Recovery:

1-Chloro-3-fluorobenzene..... 109%

Results pertain only to samples tested in the laboratory. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical.

FL00667.QUN <4 of 20>

Quanterra Inc.
 1721 S. Grand Ave.
 Santa Ana, CA 92705
 Attention: Keith Aleckson

Client Project ID: 123313
 ERM-West/Tucson Ang.
 Sample Descript: Water, MW 96-L-96-2
 Lab Number: FL00671

Sampled: Dec 2, 1996
 Received: Dec 4, 1996
 Extracted: Dec 17, 1996
 Analyzed: Dec 17, 1996
 Reported: Dec 18, 1996

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit µg/L (ppb)	Sample Result	
		µg/L (ppb)	
Bromodichloromethane.....	1.0	.....	N.D.
Bromoform.....	1.0	.....	N.D.
Bromomethane.....	1.0	.....	N.D.
Carbon tetrachloride.....	1.0	.....	N.D.
Chlorobenzene.....	1.0	.....	N.D.
Chloroethane.....	1.0	.....	N.D.
2-Chloroethylvinyl ether.....	1.0	.....	N.D.
Chloroform.....	1.0	.....	N.D.
Chloromethane.....	1.0	.....	N.D.
Dibromochloromethane.....	1.0	.....	N.D.
1,2-Dichlorobenzene.....	1.0	.....	N.D.
1,3-Dichlorobenzene.....	1.0	.....	N.D.
1,4-Dichlorobenzene.....	1.0	.....	N.D.
1,1-Dichloroethane.....	1.0	.....	N.D.
1,2-Dichloroethane.....	1.0	.....	N.D.
1,1-Dichloroethene.....	1.0	.....	N.D.
cis-1,2-Dichloroethene.....	1.0	.....	N.D.
trans-1,2-Dichloroethene.....	1.0	.....	N.D.
1,2-Dichloropropane.....	1.0	.....	N.D.
cis-1,3-Dichloropropene.....	1.0	.....	N.D.
trans-1,3-Dichloropropene.....	1.0	.....	N.D.
Methylene chloride.....	1.0	.....	N.D.
1,1,2,2-Tetrachloroethane.....	1.0	.....	N.D.
Tetrachloroethene.....	1.0	.....	N.D.
1,1,1-Trichloroethane.....	1.0	.....	N.D.
1,1,2-Trichloroethane.....	1.0	.....	N.D.
Trichloroethene.....	1.0	.....	22
Trichlorofluoromethane.....	1.0	.....	N.D.
Vinyl chloride.....	1.0	.....	N.D.
Dichlorodifluoromethane.....	5.0	.....	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)


 Marie Vaughn
 Project Manager

Surrogate Standard Recovery:

1-Chloro-3-fluorobenzene..... 110%

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Quanterra Inc.
1721 S. Grand Ave.
Santa Ana, CA 92705
Attention: Keith Aleckson

Client Project ID: 123313
ERM-West/Tucson Ang.
Sample Descript: Water, MW 97-U-96-2
Lab Number: FL00672

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1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
16525 Sherman Way, Suite C-II, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
2465 W. 12th St., Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1333

Sampled: Dec 2, 1996
Received: Dec 4, 1996
Extracted: Dec 17, 1996
Analyzed: Dec 17, 1996
Reported: Dec 18, 1996

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit	Sample Result	
		µg/L (ppb)	µg/L (ppb)
Bromodichloromethane.....	1.0	.....	N.D.
Bromoform.....	1.0	.....	N.D.
Bromomethane.....	1.0	.....	N.D.
Carbon tetrachloride.....	1.0	.....	N.D.
Chlorobenzene.....	1.0	.....	N.D.
Chloroethane.....	1.0	.....	N.D.
2-Chloroethylvinyl ether.....	1.0	.....	N.D.
Chloroform.....	1.0	.....	N.D.
Chloromethane.....	1.0	.....	N.D.
Dibromochloromethane.....	1.0	.....	N.D.
1,2-Dichlorobenzene.....	1.0	.....	N.D.
1,3-Dichlorobenzene.....	1.0	.....	N.D.
1,4-Dichlorobenzene.....	1.0	.....	N.D.
1,1-Dichloroethane.....	1.0	.....	N.D.
1,2-Dichloroethane.....	1.0	.....	N.D.
1,1-Dichloroethene.....	1.0	.....	N.D.
cis-1,2-Dichloroethene.....	1.0	.....	N.D.
trans-1,2-Dichloroethene.....	1.0	.....	N.D.
1,2-Dichloropropane.....	1.0	.....	N.D.
cis-1,3-Dichloropropene.....	1.0	.....	N.D.
trans-1,3-Dichloropropene.....	1.0	.....	N.D.
Methylene chloride.....	1.0	.....	N.D.
1,1,2,2-Tetrachloroethane.....	1.0	.....	N.D.
Tetrachloroethene.....	1.0	.....	N.D.
1,1,1-Trichloroethane.....	1.0	.....	N.D.
1,1,2-Trichloroethane.....	1.0	.....	N.D.
Trichloroethene.....	1.0	.....	N.D.
Trichlorofluoromethane.....	1.0	.....	N.D.
Vinyl chloride.....	1.0	.....	N.D.
Dichlorodifluoromethane.....	5.0	.....	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)

Marie Vaughn
Project Manager

Surrogate Standard Recovery:

1-Chloro-3-fluorobenzene..... 107%

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FL00667.QUN <6 of 20>



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16525 Sherman Way, Suite C-11, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
2465 W. 12th St., Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1338

Quanterra Inc.
1721 S. Grand Ave.
Santa Ana, CA 92705
Attention: Keith Aleckson

Client Project ID: 123313
ERM-West/Tucson Ang.
Sample Descript: Water, MW 97-L-96-2
Lab Number: FL00673

Sampled: Dec 2, 1996
Received: Dec 4, 1996
Extracted: Dec 17, 1996
Analyzed: Dec 17, 1996
Reported: Dec 18, 1996

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit µg/L (ppb)	Sample Result µg/L (ppb)
Bromodichloromethane.....	1.0	.....
Bromoform.....	1.0	.....
Bromomethane.....	1.0	.....
Carbon tetrachloride.....	1.0	.....
Chlorobenzene.....	1.0	.....
Chloroethane.....	1.0	.....
2-Chloroethylvinyl ether.....	1.0	.....
Chloroform.....	1.0	.....
Chloromethane.....	1.0	.....
Dibromochloromethane.....	1.0	.....
1,2-Dichlorobenzene.....	1.0	.....
1,3-Dichlorobenzene.....	1.0	.....
1,4-Dichlorobenzene.....	1.0	.....
1,1-Dichloroethane.....	1.0	.....
1,2-Dichloroethane.....	1.0	.....
1,1-Dichloroethene.....	1.0	.....
cis-1,2-Dichloroethene.....	1.0	.....
trans-1,2-Dichloroethene.....	1.0	.....
1,2-Dichloropropane.....	1.0	.....
cis-1,3-Dichloropropene.....	1.0	.....
trans-1,3-Dichloropropene.....	1.0	.....
Methylene chloride.....	1.0	.....
1,1,2,2-Tetrachloroethane.....	1.0	.....
Tetrachloroethene.....	1.0	.....
1,1,1-Trichloroethane.....	1.0	.....
1,1,2-Trichloroethane.....	1.0	.....
Trichloroethene.....	1.0	1.1
Trichlorofluoromethane.....	1.0	.....
Vinyl chloride.....	1.0	.....
Dichlorodifluoromethane.....	5.0	.....

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)

Marie Vaughn
Project Manager

Surrogate Standard Recovery:

1-Chloro-3-fluorobenzene.....

115%

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FL00667.QUN <7 of 20>



2852 Alton Ave., Irvine, CA 92606 (714) 261-1022 FAX (714) 261-1133
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16525 Sherman Way, Suite C-II, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
2465 W. 12th St., Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1133

Quanterra Inc.
1721 S. Grand Ave.
Santa Ana, CA 92705
Attention: Keith Aleckson

Client Project ID: 123313
ERM-West/Tucson Ang.
Sample Descript: Water, MW 97-L-96-2*
Lab Number: FL00674

Sampled: Dec 2, 1996
Received: Dec 4, 1996
Extracted: Dec 17, 1996
Analyzed: Dec 17, 1996
Reported: Dec 18, 1996

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit µg/L (ppb)	Sample Result	
			µg/L (ppb)
Bromodichloromethane.....	1.0	.....	N.D.
Bromoform.....	1.0	.....	N.D.
Bromomethane.....	1.0	.....	N.D.
Carbon tetrachloride.....	1.0	.....	N.D.
Chlorobenzene.....	1.0	.....	N.D.
Chloroethane.....	1.0	.....	N.D.
2-Chloroethylvinyl ether.....	1.0	.....	N.D.
Chloroform.....	1.0	.....	N.D.
Chloromethane.....	1.0	.....	N.D.
Dibromochloromethane.....	1.0	.....	N.D.
1,2-Dichlorobenzene.....	1.0	.....	N.D.
1,3-Dichlorobenzene.....	1.0	.....	N.D.
1,4-Dichlorobenzene.....	1.0	.....	N.D.
1,1-Dichloroethane.....	1.0	.....	N.D.
1,2-Dichloroethane.....	1.0	.....	N.D.
1,1-Dichloroethene.....	1.0	.....	N.D.
cis-1,2-Dichloroethene.....	1.0	.....	N.D.
trans-1,2-Dichloroethene.....	1.0	.....	N.D.
1,2-Dichloropropane.....	1.0	.....	N.D.
cis-1,3-Dichloropropene.....	1.0	.....	N.D.
trans-1,3-Dichloropropene.....	1.0	.....	N.D.
Methylene chloride.....	1.0	.....	N.D.
1,1,2,2-Tetrachloroethane.....	1.0	.....	N.D.
Tetrachloroethene.....	1.0	.....	N.D.
1,1,1-Trichloroethane.....	1.0	.....	N.D.
1,1,2-Trichloroethane.....	1.0	.....	N.D.
Trichloroethene.....	1.0	.....	1.0
Trichlorofluoromethane.....	1.0	.....	N.D.
Vinyl chloride.....	1.0	.....	N.D.
Dichlorodifluoromethane.....	5.0	.....	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)

Marie Vaughn
Project Manager

Surrogate Standard Recovery:

1-Chloro-3-fluorobenzene..... 106%

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FL00667.QUN <8 of 20>

Quanterra Inc.
 1721 S. Grand Ave.
 Santa Ana, CA 92705
 Attention: Keith Aleckson

Client Project ID: 123313
 ERM-West/Tucson Ang.
 Sample Descript: Water, MW 93-U-96-2
 Lab Number: FL00675

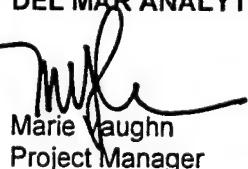
Sampled: Dec 3, 1996
 Received: Dec 4, 1996
 Extracted: Dec 17, 1996
 Analyzed: Dec 17, 1996
 Reported: Dec 18, 1996

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit	Sample Result	
		µg/L (ppb)	µg/L (ppb)
Bromodichloromethane.....	1.0	.....	N.D.
Bromoform.....	1.0	.....	N.D.
Bromomethane.....	1.0	.....	N.D.
Carbon tetrachloride.....	1.0	.....	N.D.
Chlorobenzene.....	1.0	.....	N.D.
Chloroethane.....	1.0	.....	N.D.
2-Chloroethylvinyl ether.....	1.0	.....	N.D.
Chloroform.....	1.0	.....	N.D.
Chloromethane.....	1.0	.....	N.D.
Dibromochloromethane.....	1.0	.....	N.D.
1,2-Dichlorobenzene.....	1.0	.....	N.D.
1,3-Dichlorobenzene.....	1.0	.....	N.D.
1,4-Dichlorobenzene.....	1.0	.....	N.D.
1,1-Dichloroethane.....	1.0	.....	N.D.
1,2-Dichloroethane.....	1.0	.....	N.D.
1,1-Dichloroethene.....	1.0	.....	N.D.
cis-1,2-Dichloroethene.....	1.0	.....	N.D.
trans-1,2-Dichloroethene.....	1.0	.....	N.D.
1,2-Dichloropropane.....	1.0	.....	N.D.
cis-1,3-Dichloropropene.....	1.0	.....	N.D.
trans-1,3-Dichloropropene.....	1.0	.....	N.D.
Methylene chloride.....	1.0	.....	N.D.
1,1,2,2-Tetrachloroethane.....	1.0	.....	N.D.
Tetrachloroethene.....	1.0	.....	N.D.
1,1,1-Trichloroethane.....	1.0	.....	N.D.
1,1,2-Trichloroethane.....	1.0	.....	N.D.
Trichloroethene.....	1.0	.....	3.1
Trichlorofluoromethane.....	1.0	.....	N.D.
Vinyl chloride.....	1.0	.....	N.D.
Dichlorodifluoromethane.....	5.0	.....	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)


 Marie Vaughn
 Project Manager

Surrogate Standard Recovery:

1-Chloro-3-fluorobenzene..... 113%

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2465 W. 12th St., Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-13

Quanterra Inc.
1721 S. Grand Ave.
Santa Ana, CA 92705
Attention: Keith Aleckson

Client Project ID: 123313
ERM-West/Tucson Ang.
Sample Descript: Water, MW 93-U-96-2*
Lab Number: FL00676

Sampled: Dec 3, 1996
Received: Dec 4, 1996
Extracted: Dec 17, 1996
Analyzed: Dec 17, 1996
Reported: Dec 18, 1996

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit µg/L (ppb)	Sample Result µg/L (ppb)
Bromodichloromethane.....	1.0	1.3
Bromoform.....	1.0	N.D.
Bromomethane.....	1.0	N.D.
Carbon tetrachloride.....	1.0	N.D.
Chlorobenzene.....	1.0	N.D.
Chloroethane.....	1.0	N.D.
2-Chloroethylvinyl ether.....	1.0	N.D.
Chloroform.....	1.0	N.D.
Chloromethane.....	1.0	N.D.
Dibromochloromethane.....	1.0	N.D.
1,2-Dichlorobenzene.....	1.0	N.D.
1,3-Dichlorobenzene.....	1.0	N.D.
1,4-Dichlorobenzene.....	1.0	N.D.
1,1-Dichloroethane.....	1.0	N.D.
1,2-Dichloroethane.....	1.0	N.D.
1,1-Dichloroethene.....	1.0	N.D.
cis-1,2-Dichloroethene.....	1.0	N.D.
trans-1,2-Dichloroethene.....	1.0	N.D.
1,2-Dichloropropane.....	1.0	N.D.
cis-1,3-Dichloropropene.....	1.0	N.D.
trans-1,3-Dichloropropene.....	1.0	N.D.
Methylene chloride.....	1.0	N.D.
1,1,2,2-Tetrachloroethane.....	1.0	N.D.
Tetrachloroethene.....	1.0	N.D.
1,1,1-Trichloroethane.....	1.0	N.D.
1,1,2-Trichloroethane.....	1.0	N.D.
Trichloroethene.....	1.0	N.D.
Trichlorofluoromethane.....	1.0	N.D.
Vinyl chloride.....	1.0	N.D.
Dichlorodifluoromethane.....	5.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)

Marie Vaughn
Project Manager

Surrogate Standard Recovery:
1-Chloro-3-fluorobenzene..... 110%

Results pertain only to samples tested in the laboratory. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical.

FL00667.QUN <10 of 20>

Quanterra Inc.
 1721 S. Grand Ave.
 Santa Ana, CA 92705
 Attention: Keith Aleckson

Client Project ID: 123313
 ERM-West/Tucson Ang.
 Sample Descript: Water, MW 101-U-96-2
 Lab Number: FL00677

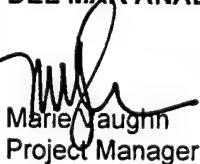
Sampled: Dec 3, 1996
 Received: Dec 4, 1996
 Extracted: Dec 17, 1996
 Analyzed: Dec 17, 1996
 Reported: Dec 18, 1996

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit µg/L (ppb)	Sample Result µg/L (ppb)
Bromodichloromethane.....	1.0	.....
Bromoform.....	1.0	.....
Bromomethane.....	1.0	.....
Carbon tetrachloride.....	1.0	.....
Chlorobenzene.....	1.0	.....
Chloroethane.....	1.0	.....
2-Chloroethylvinyl ether.....	1.0	.....
Chloroform.....	1.0	.....
Chloromethane.....	1.0	.....
Dibromochloromethane.....	1.0	.....
1,2-Dichlorobenzene.....	1.0	.....
1,3-Dichlorobenzene.....	1.0	.....
1,4-Dichlorobenzene.....	1.0	.....
1,1-Dichloroethane.....	1.0	.....
1,2-Dichloroethane.....	1.0	.....
1,1-Dichloroethene.....	1.0	.....
cis-1,2-Dichloroethene.....	1.0	.....
trans-1,2-Dichloroethene.....	1.0	.....
1,2-Dichloropropane.....	1.0	.....
cis-1,3-Dichloropropene.....	1.0	.....
trans-1,3-Dichloropropene.....	1.0	.....
Methylene chloride.....	1.0	.....
1,1,2,2-Tetrachloroethane.....	1.0	.....
Tetrachloroethene.....	1.0	.....
1,1,1-Trichloroethane.....	1.0	.....
1,1,2-Trichloroethane.....	1.0	.....
Trichloroethene.....	1.0	.....
Trichlorofluoromethane.....	1.0	.....
Vinyl chloride.....	1.0	.....
Dichlorodifluoromethane.....	5.0	.....
Trichloroethene.....	1.0	6.6

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)


 Marie Vaughn
 Project Manager

Surrogate Standard Recovery:

1-Chloro-3-fluorobenzene..... 107%

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FL00667.QUN <11 of 20>



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2465 W. 12th St., Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1023

Quanterra Inc.
1721 S. Grand Ave.
Santa Ana, CA 92705
Attention: Keith Aleckson

Client Project ID: 123313
ERM-West/Tucson Ang.
Sample Descript: Water, MW 101-L-96-2
Lab Number: FL00678

Sampled: Dec 3, 1996
Received: Dec 4, 1996
Extracted: Dec 17, 1996
Analyzed: Dec 17, 1996
Reported: Dec 18, 1996

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit µg/L (ppb)	Sample Result µg/L (ppb)
Bromodichloromethane.....	1.0	.....
Bromoform.....	1.0	.....
Bromomethane.....	1.0	.....
Carbon tetrachloride.....	1.0	.....
Chlorobenzene.....	1.0	.....
Chloroethane.....	1.0	.....
2-Chloroethylvinyl ether.....	1.0	.....
Chloroform.....	1.0	.....
Chloromethane.....	1.0	.....
Dibromochloromethane.....	1.0	.....
1,2-Dichlorobenzene.....	1.0	.....
1,3-Dichlorobenzene.....	1.0	.....
1,4-Dichlorobenzene.....	1.0	.....
1,1-Dichloroethane.....	1.0	.....
1,2-Dichloroethane.....	1.0	.....
1,1-Dichloroethene.....	1.0	.....
cis-1,2-Dichloroethene.....	1.0	.....
trans-1,2-Dichloroethene.....	1.0	.....
1,2-Dichloropropane.....	1.0	.....
cis-1,3-Dichloropropene.....	1.0	.....
trans-1,3-Dichloropropene.....	1.0	.....
Methylene chloride.....	1.0	.....
1,1,2,2-Tetrachloroethane.....	1.0	.....
Tetrachloroethene.....	1.0	.....
1,1,1-Trichloroethane.....	1.0	.....
1,1,2-Trichloroethane.....	1.0	.....
Trichloroethene.....	1.0	12
Trichlorofluoromethane.....	1.0	.....
Vinyl chloride.....	1.0	.....
Dichlorodifluoromethane.....	5.0	.....

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)

Marie Vaughn
Project Manager

Surrogate Standard Recovery:
1-Chloro-3-fluorobenzene..... 107%

Results pertain only to samples tested in the laboratory. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical.

FL00667.QUN <12 of 20>

Quanterra Inc.
 1721 S. Grand Ave.
 Santa Ana, CA 92705
 Attention: Keith Aleckson

Client Project ID: 123313
 ERM-West/Tucson Ang.
 Sample Descript: Water, MW 102-U-96-2
 Lab Number: FL00679

Sampled: Dec 3, 1996
 Received: Dec 4, 1996
 Extracted: Dec 17, 1996
 Analyzed: Dec 17, 1996
 Reported: Dec 18, 1996

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit µg/L (ppb)	Sample Result	
		µg/L (ppb)	µg/L (ppb)
Bromodichloromethane.....	1.0	.....	N.D.
Bromoform.....	1.0	.....	N.D.
Bromomethane.....	1.0	.....	N.D.
Carbon tetrachloride.....	1.0	.....	N.D.
Chlorobenzene.....	1.0	.....	N.D.
Chloroethane.....	1.0	.....	N.D.
2-Chloroethylvinyl ether.....	1.0	.....	N.D.
Chloroform.....	1.0	.....	N.D.
Chloromethane.....	1.0	.....	N.D.
Dibromochloromethane.....	1.0	.....	N.D.
1,2-Dichlorobenzene.....	1.0	.....	N.D.
1,3-Dichlorobenzene.....	1.0	.....	N.D.
1,4-Dichlorobenzene.....	1.0	.....	N.D.
1,1-Dichloroethane.....	1.0	.....	N.D.
1,2-Dichloroethane.....	1.0	.....	N.D.
1,1-Dichloroethene.....	1.0	.....	N.D.
cis-1,2-Dichloroethene.....	1.0	.....	N.D.
trans-1,2-Dichloroethene.....	1.0	.....	N.D.
1,2-Dichloropropane.....	1.0	.....	N.D.
cis-1,3-Dichloropropene.....	1.0	.....	N.D.
trans-1,3-Dichloropropene.....	1.0	.....	N.D.
Methylene chloride.....	1.0	.....	N.D.
1,1,2,2-Tetrachloroethane.....	1.0	.....	N.D.
Tetrachloroethene.....	1.0	.....	N.D.
1,1,1-Trichloroethane.....	1.0	.....	N.D.
1,1,2-Trichloroethane.....	1.0	.....	N.D.
Trichloroethene.....	1.0	.....	26
Trichlorofluoromethane.....	1.0	.....	N.D.
Vinyl chloride.....	1.0	.....	N.D.
Dichlorodifluoromethane.....	5.0	.....	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)


 Marie Vaughn
 Project Manager

Surrogate Standard Recovery:

1-Chloro-3-fluorobenzene..... 109%

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16525 Sherman Way, Suite C-II, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
2465 W. 12th St., Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1043

Quanterra Inc.
1721 S. Grand Ave.
Santa Ana, CA 92705
Attention: Keith Aleckson

Client Project ID: 123313
ERM-West/Tucson Ang.
Sample Descript: Water, MW 102-U-96-2*
Lab Number: FL00680

Sampled: Dec 3, 1996
Received: Dec 4, 1996
Extracted: Dec 17, 1996
Analyzed: Dec 17, 1996
Reported: Dec 18, 1996

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit µg/L (ppb)	Sample Result	
			µg/L (ppb)
Bromodichloromethane.....	1.0	.....	1.9
Bromoform.....	1.0	.....	N.D.
Bromomethane.....	1.0	.....	N.D.
Carbon tetrachloride.....	1.0	.....	N.D.
Chlorobenzene.....	1.0	.....	N.D.
Chloroethane.....	1.0	.....	N.D.
2-Chloroethylvinyl ether.....	1.0	.....	N.D.
Chloroform.....	1.0	.....	1.6
Chloromethane.....	1.0	.....	N.D.
Dibromochloromethane.....	1.0	.....	1.1
1,2-Dichlorobenzene.....	1.0	.....	N.D.
1,3-Dichlorobenzene.....	1.0	.....	N.D.
1,4-Dichlorobenzene.....	1.0	.....	N.D.
1,1-Dichloroethane.....	1.0	.....	N.D.
1,2-Dichloroethane.....	1.0	.....	N.D.
1,1-Dichloroethene.....	1.0	.....	N.D.
cis-1,2-Dichloroethene.....	1.0	.....	N.D.
trans-1,2-Dichloroethene.....	1.0	.....	N.D.
1,2-Dichloropropane.....	1.0	.....	N.D.
cis-1,3-Dichloropropene.....	1.0	.....	N.D.
trans-1,3-Dichloropropene.....	1.0	.....	N.D.
Methylene chloride.....	1.0	.....	N.D.
1,1,2,2-Tetrachloroethane.....	1.0	.....	N.D.
Tetrachloroethene.....	1.0	.....	N.D.
1,1,1-Trichloroethane.....	1.0	.....	N.D.
1,1,2-Trichloroethane.....	1.0	.....	N.D.
Trichloroethene.....	1.0	.....	N.D.
Trichlorofluoromethane.....	1.0	.....	N.D.
Vinyl chloride.....	1.0	.....	N.D.
Dichlorodifluoromethane.....	5.0	.....	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)

Marie Vaughn
Project Manager

Surrogate Standard Recovery:

1-Chloro-3-fluorobenzene..... 109%

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FL00667.QUN <14 of 20>

Quanterra Inc.
 1721 S. Grand Ave.
 Santa Ana, CA 92705
 Attention: Keith Aleckson

Client Project ID: 123313
 ERM-West/Tucson Ang.
 Sample Descript: Water, MW 102-L-96-2
 Lab Number: FL00681

Sampled: Dec 3, 1996
 Received: Dec 4, 1996
 Extracted: Dec 17, 1996
 Analyzed: Dec 17, 1996
 Reported: Dec 18, 1996

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit µg/L (ppb)	Sample Result µg/L (ppb)
Bromodichloromethane.....	1.0	.....
Bromoform.....	1.0	.....
Bromomethane.....	1.0	.....
Carbon tetrachloride.....	1.0	.....
Chlorobenzene.....	1.0	.....
Chloroethane.....	1.0	.....
2-Chloroethylvinyl ether.....	1.0	.....
Chloroform.....	1.0	.....
Chloromethane.....	1.0	.....
Dibromochloromethane.....	1.0	.....
1,2-Dichlorobenzene.....	1.0	.....
1,3-Dichlorobenzene.....	1.0	.....
1,4-Dichlorobenzene.....	1.0	.....
1,1-Dichloroethane.....	1.0	.....
1,2-Dichloroethane.....	1.0	.....
1,1-Dichloroethene.....	1.0	.....
cis-1,2-Dichloroethene.....	1.0	.....
trans-1,2-Dichloroethene.....	1.0	.....
1,2-Dichloropropane.....	1.0	.....
cis-1,3-Dichloropropene.....	1.0	.....
trans-1,3-Dichloropropene.....	1.0	.....
Methylene chloride.....	1.0	.....
1,1,2,2-Tetrachloroethane.....	1.0	.....
Tetrachloroethene.....	1.0	.....
1,1,1-Trichloroethane.....	1.0	.....
1,1,2-Trichloroethane.....	1.0	.....
Trichloroethene.....	1.0	12
Trichlorofluoromethane.....	1.0	.....
Vinyl chloride.....	1.0	.....
Dichlorodifluoromethane.....	5.0	.....

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)


 Marie Vaughn
 Project Manager

Surrogate Standard Recovery:

1-Chloro-3-fluorobenzene..... 107%

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2465 W. 12th St., Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1046

Quanterra Inc.
1721 S. Grand Ave.
Santa Ana, CA 92705
Attention: Keith Aleckson

Client Project ID: 123313
ERM-West/Tucson Ang.
Sample Descript: Water, MW 102-L-96-2*
Lab Number: FL00682

Sampled: Dec 3, 1996
Received: Dec 4, 1996
Extracted: Dec 17, 1996
Analyzed: Dec 17, 1996
Reported: Dec 18, 1996

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit	Sample Result	
		µg/L (ppb)	µg/L (ppb)
Bromodichloromethane.....	1.0	.....	N.D.
Bromoform.....	1.0	.....	N.D.
Bromomethane.....	1.0	.....	N.D.
Carbon tetrachloride.....	1.0	.....	N.D.
Chlorobenzene.....	1.0	.....	N.D.
Chloroethane.....	1.0	.....	N.D.
2-Chloroethylvinyl ether.....	1.0	.....	N.D.
Chloroform.....	1.0	.....	N.D.
Chloromethane.....	1.0	.....	N.D.
Dibromochloromethane.....	1.0	.....	N.D.
1,2-Dichlorobenzene.....	1.0	.....	N.D.
1,3-Dichlorobenzene.....	1.0	.....	N.D.
1,4-Dichlorobenzene.....	1.0	.....	N.D.
1,1-Dichloroethane.....	1.0	.....	N.D.
1,2-Dichloroethane.....	1.0	.....	N.D.
1,1-Dichloroethene.....	1.0	.....	N.D.
cis-1,2-Dichloroethene.....	1.0	.....	N.D.
trans-1,2-Dichloroethene.....	1.0	.....	N.D.
1,2-Dichloropropane.....	1.0	.....	N.D.
cis-1,3-Dichloropropene.....	1.0	.....	N.D.
trans-1,3-Dichloropropene.....	1.0	.....	N.D.
Methylene chloride.....	1.0	.....	N.D.
1,1,2,2-Tetrachloroethane.....	1.0	.....	N.D.
Tetrachloroethene.....	1.0	.....	N.D.
1,1,1-Trichloroethane.....	1.0	.....	N.D.
1,1,2-Trichloroethane.....	1.0	.....	N.D.
Trichloroethene.....	1.0	.....	11
Trichlorofluoromethane.....	1.0	.....	N.D.
Vinyl chloride.....	1.0	.....	N.D.
Dichlorodifluoromethane.....	5.0	.....	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)

Marie Vaughn
Project Manager

Surrogate Standard Recovery:
1-Chloro-3-fluorobenzene..... 107%

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FL00667.QUN <16 of 20>

Quanterra Inc.
 1721 S. Grand Ave.
 Santa Ana, CA 92705
 Attention: Keith Aleckson

Client Project ID: 123313
 ERM-West/Tucson Ang.
 Sample Descript: Water, MW 100-L-96-2
 Lab Number: FL00683

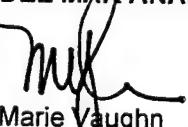
Sampled: Dec 3, 1996
 Received: Dec 4, 1996
 Extracted: Dec 17, 1996
 Analyzed: Dec 17, 1996
 Reported: Dec 18, 1996

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit	Sample Result	
		µg/L (ppb)	µg/L (ppb)
Bromodichloromethane.....	1.0	.....	N.D.
Bromoform.....	1.0	.....	N.D.
Bromomethane.....	1.0	.....	N.D.
Carbon tetrachloride.....	1.0	.....	N.D.
Chlorobenzene.....	1.0	.....	N.D.
Chloroethane.....	1.0	.....	N.D.
2-Chloroethylvinyl ether.....	1.0	.....	N.D.
Chloroform.....	1.0	.....	N.D.
Chloromethane.....	1.0	.....	N.D.
Dibromochloromethane.....	1.0	.....	N.D.
1,2-Dichlorobenzene.....	1.0	.....	N.D.
1,3-Dichlorobenzene.....	1.0	.....	N.D.
1,4-Dichlorobenzene.....	1.0	.....	N.D.
1,1-Dichloroethane.....	1.0	.....	N.D.
1,2-Dichloroethane.....	1.0	.....	N.D.
1,1-Dichloroethene.....	1.0	.....	N.D.
cis-1,2-Dichloroethene.....	1.0	.....	N.D.
trans-1,2-Dichloroethene.....	1.0	.....	N.D.
1,2-Dichloropropane.....	1.0	.....	N.D.
cis-1,3-Dichloropropene.....	1.0	.....	N.D.
trans-1,3-Dichloropropene.....	1.0	.....	N.D.
Methylene chloride.....	1.0	.....	N.D.
1,1,2,2-Tetrachloroethane.....	1.0	.....	N.D.
Tetrachloroethene.....	1.0	.....	N.D.
1,1,1-Trichloroethane.....	1.0	.....	N.D.
1,1,2-Trichloroethane.....	1.0	.....	N.D.
Trichloroethene.....	1.0	.....	16
Trichlorofluoromethane.....	1.0	.....	N.D.
Vinyl chloride.....	1.0	.....	N.D.
Dichlorodifluoromethane.....	5.0	.....	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)


 Marie Vaughn
 Project Manager

Surrogate Standard Recovery:
1-Chloro-3-fluorobenzene..... 105%

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 2465 W. 12th St., Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1500

Quanterra Inc.
 1721 S. Grand Ave.
 Santa Ana, CA 92705
 Attention: Keith Aleckson

Client Project ID: 123313
 ERM-West/Tucson Ang.
 Sample Descript: Water, MW 100-U-96-2
 Lab Number: FL00684

Sampled: Dec 3, 1996
 Received: Dec 4, 1996
 Extracted: Dec 17, 1996
 Analyzed: Dec 17, 1996
 Reported: Dec 18, 1996

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit µg/L (ppb)	Sample Result	
			µg/L (ppb)
Bromodichloromethane.....	1.0	.....	N.D.
Bromoform.....	1.0	.....	N.D.
Bromomethane.....	1.0	.....	N.D.
Carbon tetrachloride.....	1.0	.....	N.D.
Chlorobenzene.....	1.0	.....	N.D.
Chloroethane.....	1.0	.....	N.D.
2-Chloroethylvinyl ether.....	1.0	.....	N.D.
Chloroform.....	1.0	.....	3.3
Chloromethane.....	1.0	.....	N.D.
Dibromochloromethane.....	1.0	.....	N.D.
1,2-Dichlorobenzene.....	1.0	.....	N.D.
1,3-Dichlorobenzene.....	1.0	.....	N.D.
1,4-Dichlorobenzene.....	1.0	.....	N.D.
1,1-Dichloroethane.....	1.0	.....	N.D.
1,2-Dichloroethane.....	1.0	.....	N.D.
1,1-Dichloroethene.....	1.0	.....	N.D.
cis-1,2-Dichloroethene.....	1.0	.....	N.D.
trans-1,2-Dichloroethene.....	1.0	.....	N.D.
1,2-Dichloropropane.....	1.0	.....	N.D.
cis-1,3-Dichloropropene.....	1.0	.....	N.D.
trans-1,3-Dichloropropene.....	1.0	.....	N.D.
Methylene chloride.....	1.0	.....	N.D.
1,1,2,2-Tetrachloroethane.....	1.0	.....	N.D.
Tetrachloroethene.....	1.0	.....	N.D.
1,1,1-Trichloroethane.....	1.0	.....	N.D.
1,1,2-Trichloroethane.....	1.0	.....	N.D.
Trichloroethene.....	1.0	.....	7.1
Trichlorofluoromethane.....	1.0	.....	N.D.
Vinyl chloride.....	1.0	.....	N.D.
Dichlorodifluoromethane.....	5.0	.....	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)

Marie Vaughn
 Project Manager

Surrogate Standard Recovery:
1-Chloro-3-fluorobenzene..... 102%

Results pertain only to samples tested in the laboratory. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical.

FL00667.QUN <18 of 20>

Quanterra Inc.
 1721 S. Grand Ave.
 Santa Ana, CA 92705
 Attention: Keith Aleckson

Client Project ID: 123313
 ERM-West/Tucson Ang.
 Sample Descript: Water, Baker Tank-96-2
 Lab Number: FL00685

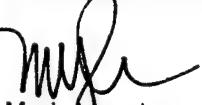
Sampled: Dec 3, 1996
 Received: Dec 4, 1996
 Extracted: Dec 17, 1996
 Analyzed: Dec 17, 1996
 Reported: Dec 18, 1996

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit µg/L (ppb)	Sample Result µg/L (ppb)
Bromodichloromethane.....	1.0	.....
Bromoform.....	1.0	.....
Bromomethane.....	1.0	.....
Carbon tetrachloride.....	1.0	.....
Chlorobenzene.....	1.0	.....
Chloroethane.....	1.0	.....
2-Chloroethylvinyl ether.....	1.0	.....
Chloroform.....	1.0	.....
Chloromethane.....	1.0	.....
Dibromochloromethane.....	1.0	.....
1,2-Dichlorobenzene.....	1.0	.....
1,3-Dichlorobenzene.....	1.0	.....
1,4-Dichlorobenzene.....	1.0	.....
1,1-Dichloroethane.....	1.0	.....
1,2-Dichloroethane.....	1.0	.....
1,1-Dichloroethene.....	1.0	.....
cis-1,2-Dichloroethene.....	1.0	.....
trans-1,2-Dichloroethene.....	1.0	.....
1,2-Dichloropropane.....	1.0	.....
cis-1,3-Dichloropropene.....	1.0	.....
trans-1,3-Dichloropropene.....	1.0	.....
Methylene chloride.....	1.0	.....
1,1,2,2-Tetrachloroethane.....	1.0	.....
Tetrachloroethene.....	1.0	.....
1,1,1-Trichloroethane.....	1.0	.....
1,1,2-Trichloroethane.....	1.0	.....
Trichloroethene.....	1.0	3.2
Trichlorofluoromethane.....	1.0	.....
Vinyl chloride.....	1.0	.....
Dichlorodifluoromethane.....	5.0	.....

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)


 Marie Vaughn
 Project Manager

Surrogate Standard Recovery:

1-Chloro-3-fluorobenzene..... 111%

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FL00667.QUN <19 of 20>



Quanterra Inc.
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Santa Ana, CA 92705
Attention: Keith Aleckson

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2465 W. 12th St., Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1028

Method Blank

Extracted: Dec 17, 1996
Analyzed: Dec 17, 1996
Reported: Dec 18, 1996
Matrix: Water

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit µg/L (ppb)	Sample Result µg/L (ppb)
Bromodichloromethane.....	1.0	.....
Bromoform.....	1.0	.....
Bromomethane.....	1.0	.....
Carbon tetrachloride.....	1.0	.....
Chlorobenzene.....	1.0	.....
Chloroethane.....	1.0	.....
2-Chloroethylvinyl ether.....	1.0	.....
Chloroform.....	1.0	.....
Chloromethane.....	1.0	.....
Dibromochloromethane.....	1.0	.....
1,2-Dichlorobenzene.....	1.0	.....
1,3-Dichlorobenzene.....	1.0	.....
1,4-Dichlorobenzene.....	1.0	.....
1,1-Dichloroethane.....	1.0	.....
1,2-Dichloroethane.....	1.0	.....
1,1-Dichloroethene.....	1.0	.....
cis-1,2-Dichloroethene.....	1.0	.....
trans-1,2-Dichloroethene.....	1.0	.....
1,2-Dichloropropane.....	1.0	.....
cis-1,3-Dichloropropene.....	1.0	.....
trans-1,3-Dichloropropene.....	1.0	.....
Methylene chloride.....	1.0	.....
1,1,2,2-Tetrachloroethane.....	1.0	.....
Tetrachloroethene.....	1.0	.....
1,1,1-Trichloroethane.....	1.0	.....
1,1,2-Trichloroethane.....	1.0	.....
Trichloroethene.....	1.0	.....
Trichlorofluoromethane.....	1.0	.....
Vinyl chloride.....	1.0	.....
Dichlorodifluoromethane.....	5.0	.....

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)

Marie Vaughn
Project Manager

Surrogate Standard Recovery:

1-Chloro-3-fluorobenzene..... 104%

Results pertain only to samples tested in the laboratory. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical.

FL00667.QUN <20 of 20>

MS/MSD DATA REPORT

EPA Method 601/602

Matrix: Water

Date: 12/17/96

Sample #: FL00671

Batch #: FL17111W

Analyte	R1	Sp	MS	MSD	PR1	PR2	RPD	Mean PR	Acceptance Limits	
	ppb	ppb	ppb	ppb	%	%	%	%	RPD	Mean PR
Benzene	0	10	10	10	103	100	2.8	102	≤10	70 - 130
Chloroform	0	10	11	11	108	107	1.2	108	≤25	70 - 130
1,1-Dichloroethane	0	10	9.7	9.7	97	97	0.069	97	≤10	70 - 130
1,2-Dichloroethane	0	10	11	10	106	102	3.4	104	≤10	70 - 130
1,1-Dichloroethene	0	10	10	11	102	105	2.7	104	≤11	70 - 130
Tetrachloroethene	0.083	10	9.9	9.9	98	98	0.0053	98	≤10	70 - 130
Toluene	0.55	10	10	10	99	94	4.6	97	≤19	70 - 130
Trichloroethene	22	10	29	30	69	81	15 *	75	≤11	70 - 130

Definition of Terms

R1..... Result of Sample Analysis
 Sp..... Spike Concentration added to sample
 MS..... Matrix Spike Result
 MSD..... Matrix Spike Duplicate Result
 PR1..... Percent Recovery of MS; $((MS-R1)/SP) \times 100$
 PR2..... Percent Recovery of MSD; $((MSD-R1)/SP) \times 100$
 RPD..... Relative Percent Difference; $((MS-MSD)/(MS+MSD)/2) \times 100$
 Mean PR..... Mean Percent Recovery
 Acceptance Limits Determined by in-house Control Charts



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2465 W. 12th St., Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1023

LCS DATA REPORT

EPA Method 601/602

Matrix: Water

Date: 12/17/96
Batch #: FL17111W

<u>Analyte</u>	<u>Spike Conc.</u>	<u>Result</u>	<u>% Recovery</u>	<u>ACP</u>
Benzene	10	9.9	99	80 - 120 %
Chloroform	10	11	113	80 - 120 %
1,1-Dichloroethane	10	10	101	80 - 120 %
1,2-Dichloroethane	10	11	112	80 - 120 %
1,1-Dichloroethene	10	9.2	92	80 - 120 %
Tetrachloroethene	10	9.4	94	80 - 120 %
Toluene	10	9.8	98	80 - 120 %
Trichloroethene	10	11	107	80 - 120 %

Definition of Terms

LCS Laboratory Control Sample
Spike Conc Result of Sample Analysis
Result Result of Laboratory Control Sample Analysis
%Recovery Percent Recovery of LCS; $((\text{Result} - \text{Spike Conc.}) / \text{Spike Conc.}) \times 100$
ACP Acceptance Limits for Percent Recovery

**Chain of Custody
Record**

QUA-4124-1

TO: DEL MAR



Environmental
Services

Project Manager		Date	12/4/96	Chain of Custody Number	617715
Telephone Number (Area Code)/Fax Number (714) 258-8610		Lab Number	123313	Page	1 of 2
Site Contact		Analysis (Attach list if more space is needed)		Special Instructions/ Conditions of Receipt	
Project Name ERM-West / Tucson, AZ		Carrier/Waybill Number 123313			
Customer Purchase Order/Contract #		Matrix		Containers & Preservatives	
Sample I.D. No. and Description (Containers for each sample may be combined on one line)		Date	Time	Soil	
TB120296-1		12-2-96	17:10	2	
MW93-L-96-2		"	18:46	3	
MW96-U-96-2		"	18:41	3	
MW96-U-96-2		"	19:10	4	
MW97-U-96-2		"	20:45	3	
MW97-L-96-2		"	21:15	3	
MW97-L-96-2		"	21:15	3	
MW93-U-96-2		12-3-96	08:10	3	
MW93-U-96-2		12-3-96	08:11	3	
MW101-U-96-2		12-3-96	08:30	3	
MW101-L-96-2		12-3-96	10:05	3	
Possible Hazard Identification		Sample Disposal			
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown		<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For <input type="checkbox"/> Other Requirements (Specify)			
Turn Around Time Required					
<input type="checkbox"/> 24 Hours <input type="checkbox"/> 48 Hours <input type="checkbox"/> 7 Days <input type="checkbox"/> 14 Days <input type="checkbox"/> 21 Days <input type="checkbox"/> Other		12/21/96			
1. Relinquished By Andy Tice		Date	12/4/96	Time	16:30
2. Relinquished By P. Beattie		Date	12-4-96	Time	17:10
3. Relinquished By P. Beattie		Date	12-4-96	Time	17:10
		Comments			

DISTRIBUTION: WHITE - Stays with the Sample; CANARY - Returned to Client with Report; PINK - Field Copy

Chain of Custody Record

TO: DEC MAR



QUA-4124-1
Client

Address	QES - SA.			Project Manager	Date	Chain Of Custody Number
City	1721 S GRAND			Telephone Number (Area Code)/Fax Number	12/4/96	61716
State	CA	Zip Code	(714) 258-8610	Site Contact	Lab Number	123 313
Project Name				Carrier/Waybill Number	Analysis (Attach list if more space is needed)	Page 2 of 2
ER.M - West / TUCSON ANG				Comments/Purchase Order/Spec. No.	Special Instructions/ Conditions of Receipt	
123313				Matrix	Containers & Preservatives	
Sample I.D. No. and Description (Containers for each sample may be combined on one line)				Date	Time	
MW102-11-96-2	MW102-4-96-2*	MW102-L-96-2	MW102-L-96-2*	12-3-96	11:15	V
MW102-4-96-2*	MW102-L-96-2	MW102-L-96-2*	MW102-L-96-2	11:16	V	3
MW102-L-96-2*	MW102-L-96-2	MW102-L-96-2	MW102-L-96-2	11:50	V	3
MW102-L-96-2	MW102-L-96-2	MW102-L-96-2	MW102-L-96-2	12:05	V	3
MW102-L-96-2	MW102-L-96-2	MW102-L-96-2	MW102-L-96-2	13:05	V	3
MW102-L-96-2	MW102-L-96-2	MW102-L-96-2	MW102-L-96-2	13:30	V	3
BAKER TANK - 96-2				14:30	V	3
				12/4/96	16:30	1
				12/4/96	17:00	2
				12/4/96	21:00	3
				12/4/96	21:00	4
				12/4/96	21:00	5
				12/4/96	21:00	6
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				12/4/96	21:00	222
				12/4/96	21:00	223
				12/4/96	21:00	224
				12/4/96	21:00	225
				12/4/96	21:00	226
				12/4/96	21:00	227
				12/4/96	21:00	228
				12/4/96	21:00	229
				12/4/96	21:00	230
				12/4/96	21:00	231
				12/4/96	21:00	232
				12/4/96	21:00	233
				12/4/96	21:00	234
				12/4/96	21:00	235
				12/4/96	21:00	236
				12/4/96	21:00	237
				12/4/96	21:00	238
				12/4/96	21:00	239
				12/4/96	21:00	240
				12/4/96	21:00	241
				12/4/96	21:00	242
				12/4/96	21:00	243
				12/4/96	21:00	244
				12/4/96	21:00	245
				12/4/96	21:00	246
				12/4/96	21:00	247

FINAL

APPENDIX B

DATA VALIDATION REPORT

DATA VALIDATION REPORT FOR VOLATILE ORGANIC ANALYTICAL
DATA FOR SAMPLES COLLECTED ON NOVEMBER 21, 1996 FROM THE AIR
ARIZONA NATIONAL GUARD BASE TUCSON, ARIZONA

QUANTERRA LABORATORY - SANTA ANA
WORK ORDER No. 123137-0001-0009

Prepared for the
National Guard

March 1997

ERM File: 123137 VOA Tucson

NARRATIVE

Seven samples, matrix spike and matrix spike duplicate sample pair, one field duplicate, and one trip blank were collected by ERM-West (ERM) from the Arizona Air National Base in Tucson, Arizona, on November 21, 1996. The samples were relinquished by ERM under documented chain-of-custody on November 21, 1996 for transport via Federal Express to Quanterra Laboratory located in Santa Ana, California.

The samples included in this sample delivery group (SDG) were characterized as follows:

ERM Sample I.D.	Laboratory Sample I.D.	Level/Matrix	Date Collected
TB112196-1	123137-0001-TB	low/water	11/21/96
MW03-L-96-2	123137-0002-SA	low/water	11/21/96
MW03-U-96-2	123137-0003-SA	low/water	11/21/96
MW71-U-96-2	123137-0004-SA	low/water	11/21/96
MW71-L-96-2	123137-0005-SA	low/water	11/21/96
MW04-U-96-2	123137-0006-SA	low/water	11/21/96
MW42-L-96-2	123137-0007-SA	low/water	11/21/96
MW92-U-96-2	123137-0008-SA	low/water	11/21/96
MW71-L-96-2*	123137-0009-SA	low/water	11/21/96

Quanterra selected the non-project sample FK04036 for the matrix spike/matrix spike duplicate.

The appropriate analytical level for the sample analysis was determined by a preliminary sample screening or at the actual time of sample analysis.

Halogenated purgeable volatile data were acquired according to the U. S. EPA SW-846 Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Method 8010B (November 1986, Third Edition, Volume 1B, Revision 2, September 1994).

Validation of these data were based on the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (9240.1-05) (Office of Solid Waste and Emergency Response, PB94-9635-1, EPA-540/R-94/012, U. S. Environmental Protection Agency, Washington, D. C., February 1993). (Organic Functional Guidelines).

The areas reviewed during the data validation procedure are enumerated as follows:

I. Technical Holding Times

- II. Initial Calibration
- III. Continuing Calibration
- IV. Blanks
- V. System Monitoring Compounds (Surrogate Spikes)
- VI. Matrix Spike/Matrix Spike Duplicates
- VII. Laboratory Control Samples
- VIII. Regional Quality Assurance and Quality Control
- IX. Target Compound Identification
- X. Compound Quantitation and Reported Contract Required Quantitation Limits (CRQLs)
- XI. System Performance
- XII. Overall Assessment of Data
- XIII. Documentation

All laboratory results have been either accepted (unqualified), qualified or rejected.

Unqualified results are valid with respect to the specified procedures, and may be used without reservations.

Qualified results are usable with the indicated limitation.

Rejected results are unusable. The analyte may or may not be present. Resampling and reanalysis will be necessary for verification.

Qualified and rejected results are annotated in accordance with the Functional Guidelines with the following codes:

- U - The analyte was analyzed for, but was not detected above the associated value.
- J - The associated numerical value is an estimated quantity.
- R - The data are unusable. The presence or absence of the analyte cannot be verified from the existing data. Resampling and reanalysis is necessary for verification.
- N - There is presumptive evidence to make a tentative identification.

NJ - There is presumptive evidence to make a tentative identification and the associated numerical value is an estimated quantity.

UJ - The analyte was analyzed for, but was not detected above the reported value. The associated value is an estimate.

DATA VALIDATION RESULTS

I. HOLDING TIMES

Quanterra provided ERM volatile sample vials for water samples with the hydrochloric acid preservative preadded. All water samples were analyzed within the specified 14-day holding time.

II. INITIAL CALIBRATION

The GC employed for samples or associated quality control samples was calibrated independently, as appropriate for water samples, at eight concentration levels. Each calibration standard contained all target compounds and all surrogates .

The initial calibration is summarized as follows:

GC Instrument ID	Date	Time
GC11	12/01/96	1820 - 2227

Each of the correlation coefficients were greater than or equal to 0.995. None of the data were qualified based on the initial calibration results.

It should be noted that the laboratory performed correlation coefficient calculations for the initial calibration. The laboratory chose to evaluate the continuing calibration using percent recovery.

III. CONTINUING CALIBRATION

The GC was calibrated for each subsequent 12-hour shift in which samples or associated quality control samples included in this SDG were analyzed. The continuing calibration was performed at one concentration level with a standard containing all target compounds and all surrogates.

The continuing calibration is summarized as follows:

GC Instrument ID	Date	Time
GC11	12/03/96	1010

Each of the percent recoveries for the target compounds were ± 25 percent or less. None of the data were qualified based on the continuing calibration.

IV. BLANKS

The following method blank was associated with these samples:

Blank ID	Level/ Matrix	GC Instrument I.D.	Date	Time
3 Dec 96-AFX	low/water	GC11	12/3/96	1050

No target compounds were reported in this method blank.

The following trip blank was associated with these samples:

Sample ID	Level/ Matrix	GC Instrument I.D.	Date	Time
TB112196-1	low/water	GC11	12/2/96	1400

No target compounds were reported in this blank.

V. SYSTEM MONITORING COMPOUNDS (SURROGATE SPIKES)

All surrogate percent recoveries (%Rs) were within the specified quality control limits .

No data were qualified based on surrogate spike recoveries.

VI. MATRIX SPIKE AND MATRIX SPIKE DUPLICATES

The following non-project matrix spike/matrix spike duplicate (MS/MSD) sample pair were associated with these samples:

Sample ID	Level/ Matrix	GC Instrument I.D.	Date	Time
FK04036MS	low/water	NP	12/3/96	NP
FK04036MSD	low/water	NP	12/3/96	NP

NP - Not Provided

The MS/MSD percent recoveries (%Rs) and relative percent differences (RPDs) were within specified quality control limits.

No data were qualified based on MS/MSD percent recoveries or relative percent differences.

VII. LABORATORY CONTROL SAMPLES

The following laboratory control sample (LCS) sample was associated with these samples:

Sample ID	Level/ Matrix	GC Instrument I.D.	Date	Time
3 Dec 96-LCS	low/water	GC11	12/3/96	1335

The LCS percent recoveries (%Rs) were within specified quality control limits.

No data were qualified based on LCS percent recoveries.

VIII. REGIONAL QUALITY ASSURANCE AND QUALITY CONTROL

No Regional Quality Assurance and Quality Control samples were included in this SDG.

IX. TARGET COMPOUND IDENTIFICATION

All target compound identifications were not second confirmed, however, the results agreed with historical data. None of the data were qualified based on the lack of second dissimilar confirmation.

X. COMPOUND QUANTITATION AND REQUIRED QUANTITATION LIMITS (CRQLs)

All target compound quantitations were acceptable with regard to the supporting data, with the above noted exception.

XI. SYSTEM PERFORMANCE

There were no marked changes in instrument performance during the course of analysis of the samples included in this SDG.

XII. OVERALL ASSESSMENT

None of the data required qualification based on the validation performed by ERM for this SDG.

XIII. DOCUMENTATION

The field sample identification and laboratory sample identifications enumerated in the Quanterra Sample and Analysis Summary (SAS) had been verified for receiving data input into the ERM data management system. These identifications were utilized during the data validation process.

VALIDATED DATA

The Volatile Organics Analysis Data Sheets with the data validation qualifiers applied by ERM are provided in this section.



Quanterra Inc.
1721 So. Grand Ave.
Santa Ana, CA 92705
Attention: Keith Aleckson

Client Project ID: 123137
ERM-West
Sample Descript: Water, TB112196-1 (-001)
Lab Number: FK04036

2852 Alton Ave., Irvine, CA 92714 (714) 261-1022 FAX (714) 261-1222
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
16525 Sherman Way, Suite C-11, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
2465 W. 12th St., Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1333

Sampled: Nov 21, 1996
Received: Nov 22, 1996
Extracted: Dec 3, 1996
Analyzed: Dec 3, 1996
Reported: Dec 4, 1996

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit µg/L (ppb)	Sample Result	
		µg/L (ppb)	
Bromodichloromethane.....	1.0	.....	N.D.
Bromoform.....	1.0	.....	N.D.
Bromomethane.....	1.0	.....	N.D.
Carbon tetrachloride.....	1.0	.....	N.D.
Chlorobenzene.....	1.0	.....	N.D.
Chloroethane.....	1.0	.....	N.D.
2-Chloroethylvinyl ether.....	1.0	.....	N.D.
Chloroform.....	1.0	.....	N.D.
Chloromethane.....	1.0	.....	N.D.
Dibromochloromethane.....	1.0	.....	N.D.
1,2-Dichlorobenzene.....	1.0	.....	N.D.
1,3-Dichlorobenzene.....	1.0	.....	N.D.
1,4-Dichlorobenzene.....	1.0	.....	N.D.
1,1-Dichloroethane.....	1.0	.....	N.D.
1,2-Dichloroethane.....	1.0	.....	N.D.
1,1-Dichloroethene.....	1.0	.....	N.D.
cis-1,2-Dichloroethene.....	1.0	.....	N.D.
trans-1,2-Dichloroethene.....	1.0	.....	N.D.
1,2-Dichloropropane.....	1.0	.....	N.D.
cis-1,3-Dichloropropene.....	1.0	.....	N.D.
trans-1,3-Dichloropropene.....	1.0	.....	N.D.
Methylene chloride.....	1.0	.....	N.D.
1,1,2,2-Tetrachloroethane.....	1.0	.....	N.D.
Tetrachloroethene.....	1.0	.....	N.D.
1,1,1-Trichloroethane.....	1.0	.....	N.D.
1,1,2-Trichloroethane.....	1.0	.....	N.D.
Trichloroethene.....	1.0	.....	N.D.
Trichlorofluoromethane.....	1.0	.....	N.D.
Vinyl chloride.....	1.0	.....	N.D.
Dichlorodifluoromethane.....	5.0	.....	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)

Nick Haring
Project Manager

Surrogate Standard Recovery:
1-Chloro-3-fluorobenzene..... 104%

Results pertain only to samples tested in the laboratory. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical.

FK04036.QUN <1 of 10>



2852 Alton Ave., Irvine, CA 92714 (714) 261-1022 FAX (714) 261-1228
 1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
 16525 Sherman Way, Suite C-11, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
 2465 W. 12th St., Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1338

Quanterra Inc.
 1721 So. Grand Ave.
 Santa Ana, CA 92705
 Attention: Keith Aleckson

Client Project ID: 123137
 ERM-West
 Sample Descript: Water, MW03-L-96-2 (-002)
 Lab Number: FK04037

Sampled: Nov 21, 1996
 Received: Nov 22, 1996
 Extracted: Dec 3, 1996
 Analyzed: Dec 3, 1996
 Reported: Dec 4, 1996

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit µg/L (ppb)	Sample Result µg/L (ppb)
Bromodichloromethane.....	1.0	.....
Bromoform.....	1.0	.....
Bromomethane.....	1.0	.....
Carbon tetrachloride.....	1.0	.....
Chlorobenzene.....	1.0	.....
Chloroethane.....	1.0	.....
2-Chloroethylvinyl ether.....	1.0	.....
Chloroform.....	1.0	.....
Chloromethane.....	1.0	.....
Dibromochloromethane.....	1.0	.....
1,2-Dichlorobenzene.....	1.0	.....
1,3-Dichlorobenzene.....	1.0	.....
1,4-Dichlorobenzene.....	1.0	.....
1,1-Dichloroethane.....	1.0	.....
1,2-Dichloroethane.....	1.0	.....
1,1-Dichloroethene.....	1.0	.....
cis-1,2-Dichloroethene.....	1.0	.....
trans-1,2-Dichloroethene.....	1.0	.....
1,2-Dichloropropane.....	1.0	.....
cis-1,3-Dichloropropene.....	1.0	.....
trans-1,3-Dichloropropene.....	1.0	.....
Methylene chloride.....	1.0	.....
1,1,2,2-Tetrachloroethane.....	1.0	.....
Tetrachloroethene.....	1.0	1.8
1,1,1-Trichloroethane.....	1.0	.....
1,1,2-Trichloroethane.....	1.0	.....
Trichloroethene.....	1.0	.....
Trichlorofluoromethane.....	1.0	.....
Vinyl chloride.....	1.0	.....
Dichlorodifluoromethane.....	5.0	.....

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)


 Nick Haring
 Project Manager

Surrogate Standard Recovery:

1-Chloro-3-fluorobenzene.....

104%

Results pertain only to samples tested in the laboratory. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical.

FK04036.QUN <2 of 10>



Quanterra Inc.
1721 So. Grand Ave.
Santa Ana, CA 92705
Attention: Keith Aleckson

Client Project ID: 123137
ERM-West
Sample Descript: Water, MW03-U-96-2 (03)
Lab Number: FK04038

2852 Alton Ave., Irvine, CA 92714 (714) 261-1022 FAX (714) 261-1222
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
16525 Sherman Way, Suite C-11, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
2465 W. 12th St., Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1321

Sampled: Nov 21, 1996
Received: Nov 22, 1996
Extracted: Dec 3, 1996
Analyzed: Dec 3, 1996
Reported: Dec 4, 1996

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit µg/L (ppb)	Sample Result µg/L (ppb)
Bromodichloromethane.....	1.0	N.D.
Bromoform.....	1.0	N.D.
Bromomethane.....	1.0	N.D.
Carbon tetrachloride.....	1.0	N.D.
Chlorobenzene.....	1.0	N.D.
Chloroethane.....	1.0	N.D.
2-Chloroethylvinyl ether.....	1.0	N.D.
Chloroform.....	1.0	N.D.
Chloromethane.....	1.0	N.D.
Dibromochloromethane.....	1.0	N.D.
1,2-Dichlorobenzene.....	1.0	N.D.
1,3-Dichlorobenzene.....	1.0	N.D.
1,4-Dichlorobenzene.....	1.0	N.D.
1,1-Dichloroethane.....	1.0	N.D.
1,2-Dichloroethane.....	1.0	N.D.
1,1-Dichloroethene.....	1.0	N.D.
cis-1,2-Dichloroethene.....	1.0	N.D.
trans-1,2-Dichloroethene.....	1.0	N.D.
1,2-Dichloropropane.....	1.0	N.D.
cis-1,3-Dichloropropene.....	1.0	N.D.
trans-1,3-Dichloropropene.....	1.0	N.D.
Methylene chloride.....	1.0	N.D.
1,1,2,2-Tetrachloroethane.....	1.0	N.D.
Tetrachloroethene.....	1.0	N.D.
1,1,1-Trichloroethane.....	1.0	N.D.
1,1,2-Trichloroethane.....	1.0	N.D.
Trichloroethene.....	1.0	N.D.
Trichlorofluoromethane.....	1.0	N.D.
Vinyl chloride.....	1.0	- N.D.
Dichlorodifluoromethane.....	5.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)

Nick Haring
Project Manager

Surrogate Standard Recovery:

1-Chloro-3-fluorobenzene.....	99%
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FK04036.QUN <3 of 10>

Del Mar Analytical

Quanterra Inc.
1721 So. Grand Ave.
Santa Ana, CA 92705
Attention: Keith Aleckson

Client Project ID: 123137
ERM-West
Sample Descript: Water, MW71-U-96-2 (-004)
Lab Number: FK04039

2852 Alton Ave., Irvine, CA 92714 (714) 261-1022 FAX (714) 261-1228
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
16525 Sherman Way, Suite C-11, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
2465 W. 12th St., Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1338

Sampled: Nov 21, 1996
Received: Nov 22, 1996
Extracted: Dec 3, 1996
Analyzed: Dec 3, 1996
Reported: Dec 4, 1996

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit µg/L (ppb)	Sample Result	
		µg/L (ppb)	µg/L (ppb)
Bromodichloromethane.....	1.0	.....	N.D.
Bromoform.....	1.0	.....	N.D.
Bromomethane.....	1.0	.....	N.D.
Carbon tetrachloride.....	1.0	.....	N.D.
Chlorobenzene.....	1.0	.....	N.D.
Chloroethane.....	1.0	.....	N.D.
2-Chloroethylvinyl ether.....	1.0	.....	N.D.
Chloroform.....	1.0	.....	N.D.
Chloromethane.....	1.0	.....	N.D.
Dibromochloromethane.....	1.0	.....	N.D.
1,2-Dichlorobenzene.....	1.0	.....	N.D.
1,3-Dichlorobenzene.....	1.0	.....	N.D.
1,4-Dichlorobenzene.....	1.0	.....	N.D.
1,1-Dichloroethane.....	1.0	.....	N.D.
1,2-Dichloroethane.....	1.0	.....	N.D.
1,1-Dichloroethene.....	1.0	.....	N.D.
cis-1,2-Dichloroethene.....	1.0	.....	N.D.
trans-1,2-Dichloroethene.....	1.0	.....	N.D.
1,2-Dichloropropane.....	1.0	.....	N.D.
cis-1,3-Dichloropropene.....	1.0	.....	N.D.
trans-1,3-Dichloropropene.....	1.0	.....	N.D.
Methylene chloride.....	1.0	.....	N.D.
1,1,2,2-Tetrachloroethane.....	1.0	.....	N.D.
Tetrachloroethene.....	1.0	2.8	
1,1,1-Trichloroethane.....	1.0	.....	N.D.
1,1,2-Trichloroethane.....	1.0	.....	N.D.
Trichloroethene.....	1.0	9.3	
Trichlorofluoromethane.....	1.0	.....	N.D.
Vinyl chloride.....	1.0	.....	N.D.
Dichlorodifluoromethane.....	5.0	.....	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)


Nick Haring
Project Manager

Surrogate Standard Recovery:

1-Chloro-3-fluorobenzene..... 102%

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Quanterra Inc.
1721 So. Grand Ave.
Santa Ana, CA 92705
Attention: Keith Aleckson

Client Project ID: 123137
ERM-West
Sample Descript: Water, MW71-L-96-2 (-05)
Lab Number: FK04040

2852 Alton Ave., Irvine, CA 92714 (714) 261-1022 FAX (714) 261-1234
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
16525 Sherman Way, Suite C-11, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
2465 W. 12th St., Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1321

Sampled: Nov 21, 1996
Received: Nov 22, 1996
Extracted: Dec 3, 1996
Analyzed: Dec 3, 1996
Reported: Dec 4, 1996

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit µg/L (ppb)	Sample Result	
		µg/L (ppb)	
Bromodichloromethane.....	1.0	.....	N.D.
Bromoform.....	1.0	.....	N.D.
Bromomethane.....	1.0	.....	N.D.
Carbon tetrachloride.....	1.0	.....	N.D.
Chlorobenzene.....	1.0	.....	N.D.
Chloroethane.....	1.0	.....	N.D.
2-Chloroethylvinyl ether.....	1.0	.....	N.D.
Chloroform.....	1.0	.....	N.D.
Chloromethane.....	1.0	.....	N.D.
Dibromochloromethane.....	1.0	.....	N.D.
1,2-Dichlorobenzene.....	1.0	.....	N.D.
1,3-Dichlorobenzene.....	1.0	.....	N.D.
1,4-Dichlorobenzene.....	1.0	.....	N.D.
1,1-Dichloroethane.....	1.0	.....	N.D.
1,2-Dichloroethane.....	1.0	.....	N.D.
1,1-Dichloroethene.....	1.0	.....	N.D.
cis-1,2-Dichloroethene.....	1.0	.....	N.D.
trans-1,2-Dichloroethene.....	1.0	.....	N.D.
1,2-Dichloropropane.....	1.0	.....	N.D.
cis-1,3-Dichloropropene.....	1.0	.....	N.D.
trans-1,3-Dichloropropene.....	1.0	.....	N.D.
Methylene chloride.....	1.0	.....	N.D.
1,1,2,2-Tetrachloroethane.....	1.0	.....	N.D.
Tetrachloroethene.....	1.0	.....	N.D.
1,1,1-Trichloroethane.....	1.0	.....	N.D.
1,1,2-Trichloroethane.....	1.0	.....	N.D.
Trichloroethene.....	1.0	.....	14
Trichlorofluoromethane.....	1.0	.....	N.D.
Vinyl chloride.....	1.0	.....	N.D.
Dichlorodifluoromethane.....	5.0	.....	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)

Nick Haring
Project Manager

Surrogate Standard Recovery:
1-Chloro-3-fluorobenzene..... 98%

Results pertain only to samples tested in the laboratory. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical.

FK04036.QUN <5 of 10>

Del Mar Analytical

Quanterra Inc.
1721 So. Grand Ave.
Santa Ana, CA 92705
Attention: Keith Aleckson

Client Project ID: 123137

2852 Alton Ave., Irvine, CA 92714 (714) 261-1022 FAX (714) 261-1228
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
16525 Sherman Way, Suite C-11, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1844
2465 W. 12th St., Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1338

ERM-West
Sample Descript: Water, MW04-U-96-2 (-006)
Lab Number: FK04041

Sampled: Nov 21, 1996
Received: Nov 22, 1996
Extracted: Dec 3, 1996
Analyzed: Dec 3, 1996
Reported: Dec 4, 1996

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit µg/L (ppb)	Sample Result µg/L (ppb)
Bromodichloromethane.....	1.0	N.D.
Bromoform.....	1.0	N.D.
Bromomethane.....	1.0	N.D.
Carbon tetrachloride.....	1.0	N.D.
Chlorobenzene.....	1.0	N.D.
Chloroethane.....	1.0	N.D.
2-Chloroethylvinyl ether.....	1.0	N.D.
Chloroform.....	1.0	N.D.
Chloromethane.....	1.0	N.D.
Dibromochloromethane.....	1.0	N.D.
1,2-Dichlorobenzene.....	1.0	N.D.
1,3-Dichlorobenzene.....	1.0	N.D.
1,4-Dichlorobenzene.....	1.0	N.D.
1,1-Dichloroethane.....	1.0	N.D.
1,2-Dichloroethane.....	1.0	N.D.
1,1-Dichloroethene.....	1.0	N.D.
cis-1,2-Dichloroethene.....	1.0	N.D.
trans-1,2-Dichloroethene.....	1.0	N.D.
1,2-Dichloropropane.....	1.0	N.D.
cis-1,3-Dichloropropene.....	1.0	N.D.
trans-1,3-Dichloropropene.....	1.0	N.D.
Methylene chloride.....	1.0	N.D.
1,1,2,2-Tetrachloroethane.....	1.0	N.D.
Tetrachloroethene.....	1.0	2.2
1,1,1-Trichloroethane.....	1.0	N.D.
1,1,2-Trichloroethane.....	1.0	N.D.
Trichloroethene.....	1.0	11
Trichlorofluoromethane.....	1.0	N.D.
Vinyl chloride.....	1.0	N.D.
Dichlorodifluoromethane.....	5.0	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)


Nick Haring
Project Manager

Surrogate Standard Recovery:

1-Chloro-3-fluorobenzene..... 103%

Results pertain only to samples tested in the laboratory. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical.

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Quanterra Inc.
1721 So. Grand Ave.
Santa Ana, CA 92705
Attention: Keith Aleckson

Client Project ID: 123137
ERM-West
Sample Descript: Water, MW42-L-96-2 (-007)
Lab Number: FK04042

2852 Alton Ave., Irvine, CA 92714 (714) 261-1022 FAX (714) 261-1111
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
16525 Sherman Way, Suite C-11, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1845
2465 W. 12th St., Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1111

Sampled: Nov 21, 1996
Received: Nov 22, 1996
Extracted: Dec 3, 1996
Analyzed: Dec 3, 1996
Reported: Dec 4, 1996

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit µg/L (ppb)	Sample Result µg/L (ppb)
Bromodichloromethane.....	1.0	.....
Bromoform.....	1.0	.....
Bromomethane.....	1.0	.....
Carbon tetrachloride.....	1.0	.....
Chlorobenzene.....	1.0	.....
Chloroethane.....	1.0	.....
2-Chloroethylvinyl ether.....	1.0	.....
Chloroform.....	1.0	.....
Chloromethane.....	1.0	.....
Dibromochloromethane.....	1.0	.....
1,2-Dichlorobenzene.....	1.0	.....
1,3-Dichlorobenzene.....	1.0	.....
1,4-Dichlorobenzene.....	1.0	.....
1,1-Dichloroethane.....	1.0	.....
1,2-Dichloroethane.....	1.0	.....
1,1-Dichloroethene.....	1.0	.....
cis-1,2-Dichloroethene.....	1.0	.....
trans-1,2-Dichloroethene.....	1.0	.....
1,2-Dichloropropane.....	1.0	.....
cis-1,3-Dichloropropene.....	1.0	.....
trans-1,3-Dichloropropene.....	1.0	.....
Methylene chloride.....	1.0	.....
1,1,2,2-Tetrachloroethane.....	1.0	.....
Tetrachloroethene.....	1.0	.....
1,1,1-Trichloroethane.....	1.0	.....
1,1,2-Trichloroethane.....	1.0	.....
Trichloroethene.....	1.0	16
Trichlorofluoromethane.....	1.0	.....
Vinyl chloride.....	1.0	.....
Dichlorodifluoromethane.....	5.0	.....

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)

Nick Haring
Project Manager

Surrogate Standard Recovery:
1-Chloro-3-fluorobenzene..... 102%

Results pertain only to samples tested in the laboratory. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical.

FK04036.QUN <7 of 10>

Quanterra Inc.
1721 So. Grand Ave.
Santa Ana, CA 92705
Attention: Keith Aleckson

Client Project ID: 123137

ERM-West

2852 Alton Ave., Irvine, CA 92714 (714) 261-1022 FAX (714) 261-1228
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046

16525 Sherman Way, Suite C-11, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843

2465 W. 12th St., Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1338

Sample Descript: Water, MW92-U-96-2 (-008)
Lab Number: FK04043

Sampled: Nov 21, 1996
Received: Nov 22, 1996
Extracted: Dec 3, 1996
Analyzed: Dec 3, 1996
Reported: Dec 4, 1996

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit µg/L (ppb)	Sample Result	
		µg/L (ppb)	
Bromodichloromethane.....	1.0	.....	N.D.
Bromoform.....	1.0	.....	N.D.
Bromomethane.....	1.0	.....	N.D.
Carbon tetrachloride.....	1.0	.....	N.D.
Chlorobenzene.....	1.0	.....	N.D.
Chloroethane.....	1.0	.....	N.D.
2-Chloroethylvinyl ether.....	1.0	.....	N.D.
Chloroform.....	1.0	.....	N.D.
Chloromethane.....	1.0	.....	N.D.
Dibromochloromethane.....	1.0	.....	N.D.
1,2-Dichlorobenzene.....	1.0	.....	N.D.
1,3-Dichlorobenzene.....	1.0	.....	N.D.
1,4-Dichlorobenzene.....	1.0	.....	N.D.
1,1-Dichloroethane.....	1.0	.....	N.D.
1,2-Dichloroethane.....	1.0	.....	N.D.
1,1-Dichloroethene.....	1.0	.....	N.D.
cis-1,2-Dichloroethene.....	1.0	.....	N.D.
trans-1,2-Dichloroethene.....	1.0	.....	N.D.
1,2-Dichloropropane.....	1.0	.....	N.D.
cis-1,3-Dichloropropene.....	1.0	.....	N.D.
trans-1,3-Dichloropropene.....	1.0	.....	N.D.
Methylene chloride.....	1.0	.....	N.D.
1,1,2,2-Tetrachloroethane.....	1.0	.....	N.D.
Tetrachloroethene.....	1.0	.....	N.D.
1,1,1-Trichloroethane.....	1.0	.....	N.D.
1,1,2-Trichloroethane.....	1.0	.....	N.D.
Trichloroethene.....	1.0	.....	9.8
Trichlorofluoromethane.....	1.0	.....	N.D.
Vinyl chloride.....	1.0	.....	N.D.
Dichlorodifluoromethane.....	5.0	.....	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)


Nick Haring
Project Manager

Surrogate Standard Recovery:

1-Chloro-3-fluorobenzene.....

97%

Results pertain only to samples tested in the laboratory. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical.



2852 Alton Ave., Irvine, CA 92714 (714) 261-1022 FAX (714) 261-1228
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
16525 Sherman Way, Suite C-11, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
2465 W. 12th St., Suite 1, Tempe, AZ 85281 (602) 968-8272 FAX (602) 968-1356

Quanterra Inc.
1721 So. Grand Ave.
Santa Ana, CA 92705
Attention: Keith Aleckson

Client Project ID: 123137
ERM-West
Sample Descript: Water, MW71-L-96-2 (-009)
Lab Number: FK04044

Sampled: Nov 21, 1996
Received: Nov 22, 1996
Extracted: Dec 3, 1996
Analyzed: Dec 3, 1996
Reported: Dec 4, 1996

HALOGENATED VOLATILE ORGANICS by GC (EPA 5030/8010)

Analyte	Detection Limit µg/L (ppb)	Sample Result	
		µg/L (ppb)	
Bromodichloromethane.....	1.0	.....	N.D.
Bromoform.....	1.0	.....	N.D.
Bromomethane.....	1.0	.....	N.D.
Carbon tetrachloride.....	1.0	.....	N.D.
Chlorobenzene.....	1.0	.....	N.D.
Chloroethane.....	1.0	.....	N.D.
2-Chloroethylvinyl ether.....	1.0	.....	N.D.
Chloroform.....	1.0	.....	N.D.
Chloromethane.....	1.0	.....	N.D.
Dibromochloromethane.....	1.0	.....	N.D.
1,2-Dichlorobenzene.....	1.0	.....	N.D.
1,3-Dichlorobenzene.....	1.0	.....	N.D.
1,4-Dichlorobenzene.....	1.0	.....	N.D.
1,1-Dichloroethane.....	1.0	.....	N.D.
1,2-Dichloroethane.....	1.0	.....	N.D.
1,1-Dichloroethene.....	1.0	.....	N.D.
cis-1,2-Dichloroethene.....	1.0	.....	N.D.
trans-1,2-Dichloroethene.....	1.0	.....	N.D.
1,2-Dichloropropane.....	1.0	.....	N.D.
cis-1,3-Dichloropropene.....	1.0	.....	N.D.
trans-1,3-Dichloropropene.....	1.0	.....	N.D.
Methylene chloride.....	1.0	.....	N.D.
1,1,2,2-Tetrachloroethane.....	1.0	.....	N.D.
Tetrachloroethene.....	1.0	.....	N.D.
1,1,1-Trichloroethane.....	1.0	.....	N.D.
1,1,2-Trichloroethane.....	1.0	.....	N.D.
Trichloroethene.....	1.0	.....	12
Trichlorofluoromethane.....	1.0	.....	N.D.
Vinyl chloride.....	1.0	.....	N.D.
Dichlorodifluoromethane.....	5.0	.....	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

DEL MAR ANALYTICAL (ELAP #1197)

Nick Haring
Project Manager

Surrogate Standard Recovery:
1-Chloro-3-fluorobenzene..... 97%

Results pertain only to samples tested in the laboratory. This report shall not be reproduced, except in full, without written permission from Del Mar Analytical.

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